VOLUNTARY FINANCIAL DISCLOSURE AND THE UNLISTED SECURITIES MARKET: AN EMPIRICAL INVESTIGATION

BY

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To the memory of my late Father
and to my family

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ABSTRACT

Voluntary Financial Disclosure
And
The Unlisted Securities Market Companies:
An Empirical Investigation

This thesis investigates the hypothesis that the Unlisted Securities Market (USM) companies disclose financial information voluntarily. Also examined are the hypotheses of the possible determinants of voluntary disclosure that have been developed from the agency theory, theories of the firm, and the informational risk theory literature.

To measure voluntary financial disclosure, a disclosure index was constructed from items of information that appear or could appear, in corporate annual reports, but had not contemporaneously been specified either by the U.K. Companies Acts, the U.K. Accounting Standards Committee, or The London Stock Exchange. Using the disclosure index to compute quantitative voluntary disclosure values for the sample, the chosen hypotheses of voluntary disclosure were then tested.

The cross-industry analysis of voluntary disclosure indicates that voluntary disclosure occurs for every company sampled. Also, there is substantial variation in the quantity voluntarily disclosed by the companies in the sample.

The cross-industry analysis of the incentives of voluntary disclosure employs the regression statistical technique, after consulting the results of an initial statistical investigation and the literature. The results indicate that the probability of USM companies disclosing information voluntarily increases with firm's size, percentage of foreign turnover, gearing, and the existence of executive share option schemes. Also, the analysis shows that the probability of USM companies disclosing information voluntarily decreases with the percentage of directors' equity. Industrial sector, however, shows mixed results concerning the sign of the relationship.

Furthermore, according to the cross-industry analysis, the probability of USM companies disclosing information voluntarily decreases with firm's profitability.

Finally, the analyses do not lend support to the proposed relationships between levels of voluntary disclosure and the auditing firm, number of the non-executives on the Board of Directors, and the number of substantial shareholders.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

CHAPTER ONE

INTRODUCTION

1.1 RESEARCH OBJECTIVES

This research has two general objectives. Firstly, it aims to explore the nature and extent of current voluntary financial disclosure practice and link it to theory. Secondly, it aims to provide additional evidence on the economic factors underlying voluntary financial information disclosure.

This project aims to advance the general understanding of accounting practice in a new research setting. In particular, the focus of the research will be to investigate the voluntary financial disclosure practices of a sample of companies in the Unlisted Securities Market (USM). The Unlisted Securities Market is the second-tier market of securities operated by the International Association of Stock Exchanges (London Stock Exchange).

A brief look at a sample of companies annual reports indicates that companies disclose information in addition to what they are mandated to disclose. There are many motives and factors that could contribute to firms' decisions to voluntarily disclose information. However, little is known

about the extent of this additional disclosure, the nature of the factors involved and the degree to which these factors influence voluntary disclosure.

This research, specifically, will examine the extent of voluntary information disclosure by a sample of USM companies. Further, an attempt will be made to estimate the extent of the relationship between voluntary information disclosure and some corporate characteristics represented by accounting and non-accounting measures. The characteristics under consideration include size, gearing, profitability, directors' equity, extent of diversification (geographical and lines of business), industry sector, and other non-financial attributes. The necessary data will be extracted from the sample companies' annual reports.

1.2 IMPORTANCE OF THE RESEARCH

The importance of this research arises for two reasons: the focus on the USM and its policy implications for regulations. It was decided to study the financial information disclosure practices of USM companies for a number of reasons. Firstly, USM companies are, in general, smaller than those listed in the Main Market (full listing). However, the number of companies listed on the USM represents an important section of the stock market and, now, there are about 400 companies which trade their securities through the USM.

Further, an important feature of USM companies is that, on average, they tend to be managed by shareholders who own

a significantly larger shareholding than their counterparts in the main market. According to the Listing Agreement of the London Stock Exchange, only 20% of the share capital of companies seeking listing in the USM is required to be in public hands. Therefore, managers and directors interests in these companies is usually substantially greater than that of the main market companies.

In addition, most of the existing research on the subject of voluntary financial disclosure has concentrated on the disclosure practices of the large companies. Researchers have considered the disclosure behaviour of small companies as only a by-product to their investigations of large companies disclosure patterns. It is felt, therefore, that there is a need to study an important section of the stock market at a time when the USM is growing in terms of the number of participants and when no other research has addressed the disclosure practices of this market.

For empirical accounting research to be useful, also, it must help and assist policy makers and others who are interested in accounting policy making. Kelly (1980) argues that positive research is needed at all stages of the accounting policy making process. Empirical research must, also, add to or reinforce what policymakers already know. Further, Griffin (1987) argues that research must have the capacity to help form a common frame of reference for standard setting. Empirical research, also, can be utilised to support that frame of reference with factual knowledge of current practices and how accounting standards might affect

these users. These positive questions represent the would be assumptions of a new disclosure ruling which is a normative issue. The values of many economic consequences studies to policy makers are reduced, in contrast, because they offer little guidance in predicting the effects of a proposed accounting pronouncement and their findings can be open to numerous alternative interpretations.

The normative issues, however, take into consideration the interests of all parties affected and are concerned with the relationship of politics and accounting, a subject outwith the intent of this research.

Specifically, evidence from empirical research can enhance the knowledge of those involved in policymaking in several ways: (1) by shaping perceptions of the relationship between accounting and reporting and the capital market; (2) by examining the predictive ability of accounting information; (3) by assessing the economic consequences of accounting standards; (4) by examining the extent of constituents´ agreement on the consequences of a proposed accounting standard; and (5) by identifying feasible, potentially acceptable alternatives (Griffin, 1987).

The linkage of theory and practice in this research is intended to produce an understanding of financial accounting reporting practices which hopefully will help policymakers in their continuing work to achieve their objectives. One issue causing continuous controversy is the amount of information that companies are required to disclose in their annual reports. Legislation, since the enactment of the first Companies Act, has increased the levels of disclosure

required from public companies. Further, the establishment of standard-setting bodies which promulgate accounting standards has speeded this process. In this context, two policy documents warrant referring to.

In 1974 the Accounting Standards Steering Committee (ASSC), appointed a sub-committee to prepare a wide-ranging discussion paper (ASSC, 1974). The paper stated that the purpose of the study was to re-examine the scope and aims of published financial reports in the light of recent developments and conditions. Another aim stated was that the discussion paper would consider the most suitable means of measuring and reporting economic conditions of business enterprises.

The report was published in 1975 under the title **The Corporate Report** and suggested wide-ranging and progressive recommendations. Recently, Alexander (1986) argues that only a little of what the report suggested has actually been implemented. The Report recommended that corporate reports contain information such as: a value added statement, an employment report, a statement of transactions in foreign currency, a statement of future prospects, and a statement of corporate objectives (The Corporate Report, 1975).

Another more recent study, **Making Corporate Reports Valuable** (ICAS, 1988), also suggests that current accounting practices are not satisfactory. The study concludes that companies' reports are inadequate in that they do not supply the proper information (content and format) to users of the reports. For example, it is suggested that companies should

disclose information on their markets, comparative statistics with competitors, areas of uncertainty, research and development activities and some of the items included in **The Corporate Report** (1975).

For this research, it is expected that it will assist in understanding why companies choose to disclose information voluntarily. It will also assist the policymakers who are concerned with regulating companies' financial information disclosure by, firstly, examining the extent of companies' agreement on any proposed accounting standard and, secondly, by identifying feasible, potentially acceptable alternatives.

1.3 PRIOR RESEARCH AND THEORETICAL BACKGROUND

One can look at the disclosure of information from two angles, the supply side and the demand side. From the supplier point of view, disclosing information is an action that has both advantages and disadvantages (costs). However, from the demand point of view, information is assumed to be always beneficial to users in general and to investors in particular.

1.3.1 Role of Information

The role of information can be recognised at two levels: individual and aggregate. For the individual level, information in general, and accounting information in particular, are recognised to provide users with the necessary information to permit informed investment decisions (The Corporate Report, 1975; FASB, 1976; Sharpe, 1978; ICAS, 1988). Further, financial information is

formally acknowledged to alter the parameters of the Capital Asset Pricing Model (CAPM) (Beaver, 1981; Griffin, 1987; Griffin and Castanias, 1987).

As for the aggregate use of accounting information, this is the subject of most market reaction studies, i.e., information content studies (Benston, 1976; Ball and Brown, 1968; Firth, 1976; Emanuel, 1984; and Daley, 1984). Such studies have emphasised their investigation on, for example, the relationship between share returns and sales data, management's forecasts and share prices, and segmental data and share prices.

In summary, and according to the above empirical studies, one could argue that information is beneficial and used by both individuals and markets. The provision of information, however, is more contentious and controversial.

1.3.2 Voluntary Disclosure Studies

The voluntary disclosure of information is referred to as the disclosure of information (financial and otherwise) by companies in the absence of disclosure rules or in excess of what they are required to disclose by regulation. According to the economic rational expectations model, one could argue that the reporting of non-required financial information and incurring the associated costs implies that management view disclosure as useful. This rational expectations model is featured in the two theories of voluntary disclosure: capital market based theories and theories of the firm and agency theory.

Capital market based theories of voluntary disclosure argue that firms disclose information voluntarily in the hope that this will reduce the uncertainties attached to their shares. For example, Choi (1972) argues that companies disclose information because information reduces the uncertainties surrounding them, and consequently, reduces companies' cost of capital. In his investigation, he found that there is a relationship between the increase in the amount of information disclosed and a firm's cost of capital.

Further, according to Spence (1975), economic agents would voluntarily signal information concerning the quality of their products to other agents to publicise their products and to attract public attention. For companies, one product is their securities and shares. Penman (1978) used this theory to explain voluntary disclosure of earnings forecasts by companies. He found that disclosing firms enjoy significantly positive abnormal returns. Kripke (1979), commenting on the subject, suggests that companies disclose information voluntarily because in doing so they generate benefits by obtaining the funds they need. Suppliers of funds would not lend unless they have the appropriate information concerning the viability of the businesses they are lending the money to.

Smith (1976), however, suggests that managers have incentives to direct the flow of information to minimise investors' worries. If companies disclose their true unfavourable financial positions, he adds, they could increase their cost of capital, i.e., investors would

require a premium to compensate for the extra risk revealed by disclosing the true financial position. Therefore, according to Smith, managers are likely to disclose only the information that would reduce investors' concerns and conceal or delay disclosing the true position. Dhaliwal (1978), however, rejects this assertion and suggests that subsequent disclosure of the unfavourable information by the passage of time, for example, might result in a higher cost of capital rather than a reduction.

Theories of the firm are also employed to explain voluntary disclosure. Managerial theories of the firm, for example, explain management's perception of their role and the benefits they yield from their firms. According to the theory, disclosure of information plays an important role in improving managerial status and solving the problems which arise as a result of the conflict of interests between shareholders and management (Williamson, 1967). Also, disclosure of information is seen as one form of defence against the threat of take-over (Marris, 1964 and Williamson, 1986).

A related theory employed to explain voluntary disclosure is agency theory. According to this theory, disclosure of information is one of the methods used by management to reduce the agency costs (Ball, 1987). Managements' share in equity, according to the theory, is a determining factor of the amount of information disclosed voluntarily. Political costs are, also, considered to influence the amount of information disclosed voluntarily.

Empirically, Cerf (1961) in the U.S.A. was the first to investigate the relationship between adequacy of disclosure and a firm's economic characteristics. He found a positive relationship between voluntary disclosure and size, number of shareholders, and listing status. Singhvi and Desai (1971), examining the same phenomenon, used a modified measure of disclosure and added new company characteristics to the study. They demonstrated that the extent of disclosure was associated positively with Cerf's variables and the new added variables, earnings margin, rate of return and size of auditing firm. However, of the six variables, listing is the primary explanatory one.

Buzby (1975), however, for the purpose of constructing a list of items of information deemed useful, referred to the literature and interviewed a group of financial analysts. In contrast with the previous studies, Buzby found no relationship between the extent of disclosure and listing status. However, size was positively associated with disclosure.

In the U.K., Firth (1979) examined voluntary disclosure and concluded that size and listing status are two contributing factors that are positively associated with voluntary disclosure. Leslie (1979) investigated voluntary disclosure in an international setting. His results support the notion that voluntary disclosure is associated with a firm's size.

Recently, Gray and Roberts (1986) explored voluntary disclosure of information by British multinationals, by examining corporate perceptions of the costs and benefits of

voluntary disclosure. Their results indicate that size is positively associated with voluntary disclosure. However, profitability measured by trading profit to turnover ratio was significant to a lesser extent.

1.4 RESEARCH HYPOTHESES

The first hypothesis of this study concerns the extent of voluntary information disclosure by USM companies, i.e., USM companies disclose information voluntarily in excess of what they are required (by regulations) to disclose. Formal measurement of the practice allows researchers to determine the extent of voluntary disclosure and its variation among firms.

The second group of hypotheses concerns the relationship between levels of voluntary disclosure and companies' attributes. Based on the previously stated literature, it is hypothesised that the amount of voluntary disclosure is related to the following (explanatory) attributes: size, foreign operations, gearing, profitability, diversification, directors' share of equity, existence of executive share option schemes, existence of non-executives on the Board of Directors, tax status, industry sector and the auditing firm.

To test the hypotheses, a variety of financial measures were used as proxies for the explanatory variables. The measures were chosen after consulting the literature and previous empirical studies.

1.5 RESEARCH DESIGN AND METHODOLOGY

The design of this project is divided into three parts: sample selection, measuring voluntary disclosure, and explaining why disclosure occurs. Sample selection is concerned with choosing the companies that will be investigated from the population of USM companies. Measuring disclosure involves identifying items of importance that firms have voluntarily disclosed in the annual reports. After identifying voluntary disclosures, the next step is to aggregate these disclosures into some kind of index. The end product of the first part of the study is a disclosure index for each company in the sample and a measure of how much information was voluntarily disclosed.

The third part of the research involves an attempt to explain why some companies have higher disclosure scores than other companies. Measures were devised which correspond to firm attributes: size, foreign operations, gearing, profitability, diversification, directors share of equity, existence of executive share option schemes, existence of non-executives on the Board of Directors, and the auditing firm.

To test the hypothesised relationships, two statistical methodologies were followed. The first was concerned with detecting the general trend and finding the appropriate measures to represent the explanatory variables. This involved applying the appropriate nonparametric tests. This step was essential because these tests are the most appropriate for some of the variables. The second type of tests involved regression analyses using the ordinary least

square method (OLS). As there is more than one explanatory variable, multi-regression techniques are applied.

1.6 MAIN FINDINGS

This study identifies the existence of a significant amount of voluntary disclosure occurring during the period of the study by all of the sample companies.

In addition, increasing levels of voluntary disclosure are associated, as was expected, with: size, foreign operations, directors' share of equity, industry sector, and to a lesser extent with geographical diversification and gearing. However, profitability was negatively associated with levels of disclosure.

Further, the statistics lend no support to the other proposed relationships between levels of voluntary disclosure and: the auditing firm, existence of non-executive directors, tax status, and existence of substantial shareholding. Some of the tests indicate conflicting results.

Finally, there were some discrepancies in the results, for some of the variables, between the nonparametric tests and the regression analyses.

1.7 RESEARCH OUTLINE

The plan of the study is to begin with a review of the economic foundations of financial disclosure, and in particular, theories of voluntary disclosure, through to

sample selection, the measurement of disclosure, and, to statistical analyses.

An outline of the study is as follows:

1) Firstly, the role of information and theories of voluntary disclosure are analysed. A review of sources of demand for information is provided in Chapter Two. In the same chapter capital market theories of voluntary disclosure and the opposing arguments are examined. Chapter Three reviews the recent and current theories of the firm that support voluntary disclosure and claims that disclosure of information takes place as an ordinary organisational function.

2) The next two chapters introduce the setting of the research. Chapter Four outlines the nature of USM companies, the subjects of the research, the motivations behind establishing the market, and provides a general description of the companies listed in the market. Next, chapter five describes the regulation governing disclosure of information of public limited companies in the U.K., and in particular that of the USM companies. This represents the regulatory framework of the study which includes: Companies Acts, Accounting Standards, and The London Stock Exchange Listing Agreement (USM companies).

3) Chapter six develops the methodology of measuring voluntary financial disclosure and addresses the practical problems of implementing the methodology. This chapter, also, outlines the hypotheses of the study, the sample selection, and data collection.

4) Chapters seven to ten test the previously stated hypotheses. Companies' attributes are described in chapter seven. Chapter eight measures voluntary disclosure and tests the first group of hypotheses concerning the extent of voluntary disclosure. In chapter nine, a summary of the non-parametric tests used is provided. Also reported are the results of applying these tests in examining the second group of hypotheses. Chapter ten reviews the design and implementation of the regression analyses. In this chapter, two multi-regression models are developed to test the hypotheses.

Finally, the last two chapters discuss and summarise the results. Chapter eleven reviews the likely explanation of the results and makes comparisons with previous studies. Further, research implications are provided in this chapter. Chapter twelve presents the conclusions, the limitations of the research and future research suggestions.

CHAPTER TWO

CAPITAL MARKET BASED THEORIES OF VOLUNTARY FINANCIAL DISCLOSURE

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2.1 INTRODUCTION

The amount of financial information disclosed by companies has increased during the last two decades. One reason behind this phenomenon is the increase in the number of government regulations and of professional accounting bodies' pronouncements requesting companies to disclose specific information concerning companies' activities. However, some writers suggest that there may well be incentives for companies to disclose information voluntarily if they perceives it to be in their own interests to do so (e.g. Watts, 1977; Watts and Zimmerman, 1978; Penman, 1978; Leftwich, 1983; Ball, 1987).

If a company decides to disclose information, this is likely to result in the company incurring direct monetary costs. Where the information is already used for internal purposes, the direct cost involved is limited to dissemination expenses. Other costs include the most frequently cited objection to disclosure, that of competitive disadvantage, i.e., the use of the additional

information by competitors to the disadvantage of the company disclosing the information (Gray, McSweeney, and Shaw 1984 and Gray and Roberts, 1986).

Further, as the information used by management is not always the same as that used by outside users, disclosing additional information that is not used by management involves further expenses, i.e., gathering, production, and dissemination. In practice, this situation is very unlikely to arise because any information required by outsiders, in particular that is concerned with forecasting future cash flows, assuming a good management team is in charge, is likely to be available for internal use (ICAS, 1988).

This research identifies two main theories that explain why companies indulge in the activity of disclosing financial information voluntarily, and why there are incentives for companies to disclose information concerning their operations in the absence of a mandatory system of regulation. The first theory is based on capital market research. Capital market research concludes that firms gain from disclosure of information by reducing their cost of capital and by popularising their securities. This chapter reviews this theory and its implications. Secondly, theories of the firm consider voluntary disclosure of financial information as a specialist function performed by firms and as part of a contractual relationship between a firm's constituents: management, shareholders, employees, and the general public (Ball, 1987). Theories of the firm are discussed in the next chapter. These two theories are not alternative models in the sense that each one, separately,

explains voluntary financial disclosure. The two models are likely to coexist at the same time and overlap each other.

However, before examining the two main theories of voluntary financial disclosure, a brief discussion of the role of financial information is presented. The generally accepted role of financial information is to provide users with information. This role of information represents the demand function and the source of pressure on suppliers to produce and furnish such information.

2.2 ROLE OF FINANCIAL INFORMATION

The importance of financial information is evidenced by the existence of the relationship between share prices and financial information. This is the economic context in which investors evaluate accounting information and make decisions. The use of accounting information by investors is apparent when they assesses prospective returns or cash flows from investment opportunities. However, in an open competitive economy, investors cannot be viewed individually. Their collective actions determine market prices and the returns they realise. Therefore, the role of financial information can be looked at from two levels: individual (micro) level and aggregate (macro) level.

2.2.1 Investors Use of Accounting Information

The role of accounting and financial reporting is recognised as providing users with the necessary information for their decisions (The Corporate Report, 1975; FASB, 1978 and ICAS, 1988). The FASB recognises investors in general and their

advisers as the main users of financial information. However, **The Corporate Report** (1975) identifies seven separate user groups as the users of financial information, i.e., the equity investor group, the creditor group, the employee group, the financial analysts group, the business contact group, the government, and the public. **The Corporate Report** defines users of financial information as those who having reasonable right to information concerning the company. According to **The Corporate Report**, a reasonable right exists where the activities of a firm affect the interest of a user group.

Investors and creditors are also recognised as priority groups by public auditing firms. Arthur Andersen (1984) emphasises that investors and creditors, present and future, are the principal users of financial information.

What kind of information do these users require? Traditionally, the buy-sell-hold decision of shareholders has focused on information about the past activities of management as the steward to whom capital has been entrusted (Chen, 1972). That information should reveal managements' custodial abilities, effectiveness, and efficiency. This is the **stewardship** or **feedback** role of financial information.

Further insights into the stewardship role of financial information have been provided by recent developments in theories of the firm, and in particular agency theory. Agency theory highlights the role of financial information in economic relationships or contracts between principals (shareholders) and their agents (management). According to the theory, shareholders have recognised needs for financial

information to monitor management compliance with their contractual duties and obligations.

A second role that produces demand for financial information is known as the decision-making or predictive role of financial information. Investors, according to this role, need information of a forward-looking nature that helps them assess future events, actions, or cash flows. For example, FASB (1978) argues that investors need information to assess the amounts, timing, and uncertainty of prospective cash flows. To have potential benefit, information must be capable of **changing** individual´s assessment about future events and uncertainties.

Formally, this role is predominantly concerned with the relevance of accounting information for one group of users of financial information, investors at large. The relevance of accounting information is reflected in changes in stock market prices. Financial disclosure permits informed investment decisions by improving estimation of the parameters of the capital asset pricing model **CAPM** (Beaver, 1981 and Watts and Zimmerman, 1986). Financial disclosure should be designed to improve the estimation of the systematic risk ß for the individual firm. A better estimate of a share´s current ß would enable investors to make better estimates of its expected rate of return in future periods. Such information would allow investors to minimise their portfolio´s risk, and to form more efficient portfolios, that is, the lowest possible variance for a given expected rate of return.

The improvement in estimation is usually carried out by specialists, e.g., fund managers, financial analysts, investment banks, and pension funds managers. Some suggest that this group of users is the largest and the most important of all users. For example, Harris and Associates (1985) indicate in a survey of business and financial leaders in the U.S.A. that 82% of the leaders singled out the security analysts and their institutional clients as the most important users of financial information.

Another role suggested by the literature for financial information is the one adopted by Ijiri (1975) and others (e.g., The Canadian Institute of Chartered Accountants, 1980). This role stresses accountability towards current and prospect shareholders as the primary role for financial information which is assumed to be broader than the stewardship role-where accountability is toward current shareholders.

While demand by individuals represents part of the financial information demand function, decision-makers behaviour cannot be viewed apart from the market in which it occurs. The collective actions of individuals determine the wider role of financial information in the securities markets. This role is the subject of the next section.

2.2.2 Financial Information and Securities Markets

An analysis of market response to financial information disclosed by companies can provide an indication of whether there is demand for financial information from securities markets or not. Beaver (1972) identified this implicitly when he stated that the role of information is to help in

establishing a set of security prices, such that there exists an optimal allocation of capital between firms and an optimal allocation of resources among investors. Therefore, financial information should be disclosed so that informational and allocational efficiencies of the market will be maintained.

Informational efficiency requires that the stock market be a fair-game; the expected reward (return) is solely dependent on the risk the investor assumes (Fama, 1970). Allocational efficiency requires that the proper set of information from a cost-benefit point of view is presented so that security prices and returns will optimally allocate resources throughout the economy. The role of disclosure is to reduce informational uncertainty by increasing the amount of relevant information so that betas can be estimated more accurately (Kalyman, 1971; Beaver, 1981; and Watts and Zimmerman, 1986).

Empirically, information content research endorses the role of information in changing the parameters, mean and variance, of the share return distribution. Research in this area distinguishes between studies that deal with the announcement of earnings and those that deal with other accounting data.

Benston (1967) and Ball and Brown (1968) performed the earliest studies in U.S.A. to examine the relationship between share returns and data from firms' annual reports. They predicted and found that unexpected increases in accounting earnings were accompanied by positive abnormal

rates of return and vice versa. Beaver (1968) studied market reaction by examining the relationship between annual earnings announcements and volume of trading. He reported that there is a significant increase in trade in shares in the week of earnings announcements.

Brown and Kennely (1972) examined the information content of quarterly earnings announcements using Ball and Brown's methodology. They argued that if asset prices are instantaneously adjusted as price sensitive information flows to the market, then, changes in prices reflect a flow of relevant information pertinent to price formation. They concluded that quarterly accounting numbers have information content.

Beaver, Clark and Wright (1979) extended the investigation of the relationship between accounting information and share prices by examining the relationship between the magnitude of unexpected earnings and the magnitude of the abnormal rate of return. Their study indicated a positive association between unexpected earnings change and abnormal returns.

Other studies examining the relationship between earnings announcements and share prices include Brown (1970), Jordan (1973), Hagerman (1973), Foster (1975), Emanuel (1984) and Hawawini (1984). Firth (1976) was the first to study the relationship for firms listed on the London Stock Exchange. He concludes that financial reports have information content and this information is used by the market in evaluating the firm making the particular announcement as well as similar types of firms. Further,

Firth (1982) examined the information content of the release of a company's annual announcement in its different stages, preliminary announcement, annual earnings announcement, and annual general meeting, in the U.K. He found that at all stages substantial information was conveyed to the market. Patell and Wolfson (1984) examined dividends announcements as well as earnings announcements effect on share prices. Their results provide further evidence of the information content of earnings and dividends announcements. However, they reported that dividends announcements induced weaker response than earnings announcements.

Studies of management's forecasts also indicate that share prices incorporate a broader information set than the annual reports information. Examples of such studies include Patell (1976), Penman (1980), Abdel-khalik and Ajinkya (1982), Morse (1982), Waymire (1984) and Brown, Foster, and Noreen (1985).

Further, several studies (Collins and Simmonds, 1979; Ajinkya, 1980; Daley, 1984) have examined whether disaggregated financial data have any information content. According to these studies, the market seems to use and distinguish among profitability components. For example Collins (1975) examined the value of disclosing sales and earnings data by line of business (LOB) segment, and found such disclosure desirable and beneficial for anticipating earnings changes. However, Foster and Vickrey (1978) provided statistically weak evidence that LOB information in 10-k reports supplied to the SEC in the USA is of any value.

More recently, Rayburn (1986) investigated the association between operating cash flows and accruals and share prices. She suggested that any information that earnings provide about operating activities that is incremental to the information provided by cash flows is a function of the accrual adjustment process that transforms cash flows to earnings. The aim of the study was to know whether accruals provide information to aid investors in estimating future cash flows over and above the cash flow information contained in annual reports. Her results support the notion that an association exists between operating cash flows and aggregate accruals and between abnormal returns.

Lipe (1986) extended information content research by examining the information content of earnings components namely gross profit, general and administrative expenses, depreciation expense, interest expense, income taxes and other items. His objective was to find out if the decomposition of earnings provide additional information beyond that provided by the aggregation of the earnings components. Lipe concludes that components explain more of the variation in returns than is explained by earnings alone.

Further evidence concerning the impact of accounting disclosure are the information content studies of investors' reaction to the changes in accounting methods. While some changes in accounting methods may merely serve cosmetic purposes, others will have cash-flow consequences which is the most important consequence of information disclosure.

Beaver and Dukes (1972) and Kaplan and Roll (1972) examined the association between stock returns and earnings based on the deferral versus the flow through method of accounting for the investment tax credit and found that there is no permanent effect on share prices. This is an indication that the market can read through the reported figures. Further, Archibald (1972) studied the price effects that a change from accelerated to straight line depreciation method had on firms. Since the change will have the effect of increasing reported earnings, if the market cannot read behind the figures, it will cause the share price to rise. His results show that the patterns of observed prices after the change were not significantly different from zero. Therefore, he could not reject the hypothesis that the observed patterns were the results of a random behaviour. This demonstrates that the market perceives accounting changes as having no economic impact and being merely a book-keeping change. This lends support to the efficient market hypothesis. Ball (1972), also, concluded that investors were able to distinguish between the real and the cosmetic effects on earnings.

For accounting changes which have substantive direct cash flow effects, these effects are generally due to tax implications of the accounting changes. However, the results of studies investigating switches from LIFO to FIFO and from FIFO to LIFO provide conflicting evidence (Sunder, 1973 and 1975; Abdel-khalik and McKeown, 1978; Brown, 1980; and Ricks, 1982a).

In summary, the empirical evidence suggests that financial information is an economic good that is demanded and used at the micro level to assist individual decision makers, and at the macro level to assist in allocating efficiently society's economic resources by affecting market share prices. Financial information, therefore, is useful and there is demand for such information.

In a competitive economy, and from suppliers of information perspective, one can infer that no firm will voluntarily incur the costs of disclosure unless they believe that disclosures will be beneficial to the firm. Voluntary disclosure is only likely to occur, therefore, if benefits outweigh costs. Benefits to companies derived from disclosure of information are the rationales for voluntary disclosure suggested by the voluntary disclosure theories.

2.3 VOLUNTARY DISCLOSURE IN A BROADLY-BASED CAPITAL MARKET

It is suggested that as disclosure is beneficial to investors, it is also beneficial to corporations (Buzby, 1974). One plausible incentive for firms to disclose information voluntarily would be to popularise their shares and products and assure investors of their success. This action is referred to in the literature as the signalling theory. Such behaviour by management is an application of the signalling and screening models in an accounting context. Specifically, there are two reasons for firms to voluntarily disclose financial information. The first incentive would be to reduce the informational risk that every firm faces in the investors' minds over whether their

estimates of the future earnings include all factors that are likely to influence the firm's earnings ability. Secondly, if a firm popularises its securities by keeping investors and financial analysts informed, the confidence of such groups of users in the firm is likely to rise. Thereafter, investors would be more likely to support and subscribe to the company when it decides to raise capital in future.

One could assume, accordingly, that the essential purpose of voluntary financial disclosure is to reduce the informational risk of the investors in securities. This leads to lower risk, which in turn lowers the cost of capital to firms. Companies, therefore, have an important incentive to disclose information. This incentive represents the following main hypothesis of this research:

H1 COMPANIES DISCLOSE INFORMATION VOLUNTARILY DESPITE THE COSTS ASSOCIATED WITH DISCLOSURE.

After this introduction to the benefits achieved by companies when they disclose financial information, a detailed analysis of signalling theory is presented below.

2.3.1 Signalling Theory

Research in the area of signalling is concerned with some specific problems involved when an economic agent wants to convey some information to another agent. As an example of those problems, assume that worker productivity is the information to be conveyed (Spence, 1973, 1975 and Riley 1975, 1977). A worker having high productivity wants to disclose this to his employer so that the worker can command a higher wage. The problem is that all workers want to claim

high productivity in order to receive the higher wage. Employers are, then, unable to trust workers who report their productivity levels to them, being forced to ignore a worker's stated productivity as a means of determining his wage.

Since workers with high productivity are hurt by this, they want a method of convincing the employer that they truly have high productivity. They can find one if a signal exists. Instead of announcing the value of their characteristics, the agent signal this value using another characteristic, called the signal. In order for the signal to be able to truthfully distinguish among the agents, those who have a higher value for the characteristic of interest must be able to more cheaply give a higher valued signal. In the productivity example, education is typically the signal. It is assumed that it costs less for workers with higher productivity to attain a given level of education. Then, even though all individuals want to signal high productivity, only those actually having high productivity can afford to obtain enough education to signal it. Because of the larger expense, it is suboptimal for those with lower productivity to invest in enough education to signal high productivity. The signal therefore fulfils the function of distinguishing agents along the desired characteristic.

In the context of financial information, the signalling model assumes that managers follow the market value rule. That is, they act to maximise the market value of their firms in making information production and dissemination decisions. Penman (1978) employed this signalling theory to

explain voluntary disclosure of earnings forecasts by firms. His model is an adaptation of the signalling and screening models of Spence (1973, 1974) and Riley (1975, 1977) to the capital market setting and is considered the foundation to the subject of signalling and financial information. The next section illustrates Penman's theoretical model and its implications.

2.3.2 Penman's Basic Model

Penman's model assumes that managers follow the above mentioned market value rule. It is also assumed that firm managements have knowledge of an economic characteristic (ϕ) relevant to the valuation of their firms, but this is not known to outsiders at the beginning of the pre-disclosure period. The characteristic (ϕ) is determined by the nature of the firm's production and investment decisions and is treated as fixed and unchangeable relative to the time period considered. Moreover, in the absence of information regarding the amount of (ϕ) which a firm offers, it is assumed that the market values each firm according to the mean valuation of firms V assessed over ϕ. However, given the market value rule, the valuation, V, is not an equilibrium valuation for every firm. Further, Penman says, managements who possess an amount of ϕ which is greater than the market's assessment have an incentive to signal that information to the market. But for the signal to be a reliable proxy, the net benefits to signalling must be positively correlated with the amount of characteristic a firm possesses and the amount of actual signalling θ. Thus the model assumes that not only is signalling costly, but

also, the marginal costs of signalling are negatively correlated with the amount of ϕ possessed by a firm. However, the cost of the signalling function for a given value of ϕ is the same for all firms. Finally, to give the signal information content, it is assumed that for some range of θ , the net benefit of signalling is negative, therefore, guaranteeing a finite optimum.

In the single period case (i.e. treating the pre-disclosure period as a single period), the signalling process begins with managements who possess information about ϕ which they believe to be favourable (net of signalling cost) relative to the capital market's assessments V. Given rational expectations, managers who possess information which is adverse to V will withhold from signalling with the hope of not being singled out, since identification would result in the valuation of their firms at something less than V . However, when some firms signal, the market reassesses them and revalues V over the remaining firms. This provides an incentive for further firms to signal. As long as the net benefit of signalling is positive for firms at all levels of the signal α, the process continues through a number of repetition until all firms, except the firm with the lowest amount of α, have signalled at the equilibrium. Therefore, voluntary disclosure of each firm is correlated with an upward revaluation of the market value of the firm on its disclosure date, even if the firm has an unfavourable disclosure relative to other firms in the market.

Penman indicated that the single period model, as discussed above, is essentially that of Spence as modified by Riley. The ϕ in Spence's model, however, is a potential employee's natural ability or productivity which does not change over his working life. In the capital market framework, the amount of relevant economic attributes and characteristics possessed by firms may change over time. Therefore, subdividing the pre-disclosure period into a series of separate production and investment periods, each of which provides new ϕ, will help overcome the shortcoming in Spence's model.

In the multiperiod model, Penman suggests, all managements will learn that in spite of the signalling behaviour, the relative situation of their firm's attributes and characteristics in the distribution over all firms will be disclosed in equilibrium by the signalling activities of other firms. Thus managers may decide to signal irrespective of the amount of α they possess and so consciously rank themselves on ϕ. If so, the resultant equilibrium is described as the full disclosure or full screening equilibrium. Alternatively, Penman suggests that a no-signalling equilibrium may result through collusion if social costs exceed social benefits of signalling. The no-signalling equilibrium is however not likely to be stable due to private incentives.

The empirical results of Penman (1978) suggest that full disclosure (i.e. whether the voluntary mechanism results in the disclosure of the forecast information possessed by managements of all firms) does not result

through voluntary earnings forecast disclosure. The returns on the securities of forecasting firms during the fiscal year which the forecasts were made were, on average, higher than those on the market as a whole, other things being equal. Clearly, firms with relatively poor earnings prospects, relatively low security returns, and by implication, relatively low amounts of value-relevant attributes do not on average volunteer forecast information. However, the firms which do not voluntarily issue forecasts are, in fact, screened out as a group by the forecasting actions of others. Penman notes that a no-forecast is in fact a forecast that screens firms into this group and values them accordingly. More specifically, his results suggest that the voluntary forecasts that may be classified as low relative to other forecasts in his sample are not low relative to all firms in the market. They lie around the median of the cross-sectional distribution of the markets forecasts of all firms' earnings. The unobserved forecasts are really the low forecasts relative to the market's forecasts of all firms' earnings.

Penman, examining the behaviour of standardised residuals, observed that forecasting firms do, on average, enjoy statistically significant positive abnormal returns during the three months on either side of the voluntary forecast date, and not only on the day of the forecast announcement. In particular, good news firms were continually revalued upwards through the period and received relatively sharp upward revaluation on or about the forecast date. Furthermore, although the bad news firms on average exhibit negative residuals prior to and on the forecast

date, the negative cumulative residuals declined to approximately zero subsequent to the forecast.

In another study, Patell (1976), on voluntary forecast disclosure, showed that there was a statistically significant upward price change during the week of forecast disclosure beyond that explained by the movement of the market as a whole. Good news firms enjoyed generally positive price relative residuals during the two months prior to the forecast announcement, while bad news firms experienced generally negative residuals during the preceding two months. Nevertheless, both sets of firms enjoyed an upward price revaluation during the immediate announcement week. The price trend established prior to the forecast continued following the forecast release. Thus, the empirical results of Patell (1976) and Penman (1978) are generally supportive of each other, particularly as regards their overall sample and good news firms. Their results differ only with respect to the price movement of their bad news firms at the times of, and subsequent to, the announcement. In the Patell study, the bad news firms enjoyed upward price revision in the period of the announcement and negative residuals subsequently. In the Penman study, the bad news firms experienced a slight downward revaluation with the announcement, which decreased after the voluntary forecast announcement.

The above difference in the empirical results may be due to the differences in the time periods, data, and the samples studied. In any event, the evidence is consistent with signalling theory and the market value rule. Firms

disclosing seemingly bad news may be trying to prevent drastic downward price revisions that the market might be making about their prospects

While the formulation of signalling theory in the accounting context was only started with Penman's study, other studies before that recognised this incentive to disclose financial information but in the framework of the relationship between information, risk, and return. The following section review the literature that addresses this relationship.

2.3.3 Information Risk Theory

Penman's assertion that forecasting firms, on average, enjoy positive abnormal returns on their securities indicates how voluntary disclosure is likely to reduce informational uncertainty attached to a particular security. Financial disclosure, therefore, should allow better estimates of the possible effects that future uncertainties will have on future operations. Horngren (1957) was the first to recognise this relationship. He states:

> "If analysts are kept well informed, the following is likely to occur:
>
> 1. Analysts generally will be more interested in firms that disclose as opposed to those which do not.
> 2. Analysts' favourable attitudes result in higher price earning ratio.
> 3. Well informed analysts are more prone to know what to expect in a company's performance. Such a situation militates against the wild fluctuations which arise from startling company news.
> 4. Over the long run an individual company's stock price will be relatively higher. This tends to

> keep both the management and stockholders contented. It also enhances the future marketability of a subsequent issue of the company shares."
>
> (Horngren, 1957, pp 35).

Horngren's analysis, although expressed in times of speculation with no empirical evidence, applies in situations where a company's securities are traded in a broadly-based capital market. In the formal mean-variance portfolio model, information disclosure helps to improve resource allocation among firms. Any decision which a company can make to reduce ß, reduces that firm's required return on any investment project or cost of capital. Benston (1973) contends (though, without empirical evidence) that firms have been conscious of the effect of disclosure on their betas. He suggests that many large corporations disclosed information, such as total assets and sales before the disclosure of such items was required by law. These items are some of the variables which are assumed to have an effect on a firm's beta.

In supporting the claim that cost of capital decreases when disclosure is increased and risk is reduced. Duff and Philips, Inc. (1976) stated, in a report prepared for Aruther Anderson and Company, that:

> "Consistently good financial reporting should have a favourable long-run effect on the company's cost of capital. This cost is relative, i.e., consistent with the company's opportunities and risks in relation to alternative investment opportunities in the market. Over a period of time, good reporting leads to informed investors who, because they understand the company, will pay a fair price for its securities. They trust the information received from the company and its management. Minimum or inconsistent reporting often leads to some loss of investors confidence in the quality

> of company information and, ultimately, in the price they will pay in the market. They reserve judgement on the management. Credibility is a subtle intangible of great importance to any company, and corporate reporting practices have a major effect on it. We have often observed this connection between credibility, corporate reporting and cost of capital. Usually, companies lose credibility during a period of adversity when investors believe they are not getting forthright information. Later, when the recovery in investment position lags recovery in the business, the company realises that it must improve its reporting policies. Some of these companies are now leaders in the quality of their shareholder communication, and their credibility has been re-established. Good corporate reporting is a long-term policy applicable to good times and bad."
>
> (Duff and Philips, Inc, 1976, pp 71)

Public disclosure of financial information is not necessary if the owners of the business are also its managers, because the financial data is available to them on a personal review basis. Nor is disclosure necessary when ownership is separated from management, but the owners are few in number, own a substantial share of the firm's capital, and have long holding period horizons. In this situation, personal review of the financial records is still efficient in that it is less costly than published data, and sufficient to satisfy the information needs of the investors (although audited reports might still be useful at this point to ensure the accuracy of the data).

For companies with a substantial number of individual shareholders, the cost of communication is lowered by production of a document available to all shareholders instead of relying upon personal inspection of the financial records. Moreover, to enable the speedy liquidation of ownership positions and to permit short holding period horizons, then the potential audience for disclosure can be

expanded to include non-owners as well as owners (Leslie, 1979). Further disclosure, thus, becomes an effective policy when one of the objectives of a company is to raise large sums of capital from well informed investors who can make independent decisions.

There is, however, an argument against the positive relationship between increased information and reduction of uncertainty (Leslie, 1979). Leslie suggests that not all information reduces uncertainty. For example, the discovery of an oil field increases informational uncertainty until the size of the field is resolved. However, he argues that on average, the disclosure of information will reduce informational uncertainty, particularly in capital markets with disclosure systems that are not as well developed as those in the United States. His research considers the European capital market as less developed than the American capital market.

Firms which voluntarily disclose information will be those that want to raise capital in the market-place. Firms selling debt or equity will have more interest in increasing disclosure and immediately reducing capital costs than firms which intend to use little external financial funding. From a firm's perspective, to minimise the risk of not selling their new issues of securities, management would ensure that adequate information is available to the underwriters and the investors.

Empirically, Choi (1972) was the first to study the relationship between voluntary disclosure and cost of

capital in an international setting and a broadly-based capital market, i.e., where many shareholders own small proportions of the issued equity. Choi exhibited, indirectly, the need for capital by the firm's need for access to an external capital market. He states that:

> "Increased firm disclosure tends to improve subjective probability distribution of a securities expected return streams in the mind of an individual investor by reducing the uncertainty associated with that return stream. For firms which generally outperform the industry average, it is also argued that improved financial disclosure will tend to increase the relative weighting which an investor will place on favorable firm statistics relative to other information which he utilizes in making judgements with respect to the firm. Both of the forgoing effects will entice an individual to pay a larger amount for a given security than he would otherwise pay, thus lowering a firm's cost of capital."
>
> (Choi, 1973, pp 45)

A reduction in cost of capital can have two effects. First it would add projects to a firm's demand for funds. Or for firms with fixed demand for funds (fixed amount of funds available), disclosure of information voluntarily would reduce their cost of capital so that the firm will be able to undertake additional capital projects and maximise its profits (Barry, 1974). Accordingly, firms that are likely to disclose information voluntarily are those that would add the most projects, given a cut in their cost of capital. Growing small businesses and capital-intensive businesses are examples of such companies. This demand for capital is not restricted to large companies.

Kripke (1979) supports Choi's argument. He states that information will be supplied voluntarily by issuers interested in the capital market when there is a consensus

among suppliers of capital or other transactors in the capital markets that this information is necessary to them for lending and investment decisions; issuers will supply it because the alternative is to forego access to the capital markets. This situation arises where companies are looking for outside finance and when they are likely to use capital markets to raise capital.

In a recent study, Trueman (1986) argues that management has incentives to voluntarily release information, and in particular internally generated forecasts of earnings, as long the forecast release is costless. He suggests that this is due to the fact that the market value of the firm is influenced by investors' perceptions of management's ability to anticipate future changes in the firm's economic environment and adjust production plans accordingly. Management motivation to disclose earnings forecast stems not from the desire to inform investors about the revised expectations but from the desire to signal to investors that management has received new information. That is, management is fulfilling its duty, i.e., gathering the relevant information, and concentrating its efforts to achieve and accomplish shareholders objectives. This analysis implies that management will be willing to disclose both bad and good news.

Another risk that companies are likely to avoid is improperly pricing a new shares issue. Firm's risk here is that it will receive less cash than it could have and investors earn more return for the risk level they have assumed. Stated differently, higher security prices would

mean that a primary security issue could be priced higher, and that the net proceeds from the issue would be higher. Thus, the firm would experience larger receipts from a given issue and, hence, experience a lower cost of capital.

2.3.3 Management's Discretion over Disclosing Information

While there is an incentive for firms to disclose information voluntarily, some argue that management is aware of the effects the information has on securities prices and would disclose only good news. Ferris (1975) investigated managerial discretionary actions and the incentives for such actions. He studied a group of U.K. companies which published prospectuses during the period 1972 to 1973. He concludes that:

> "Seventy-one percent of the sample indicated that their firm utilized some type of discretionary action to reduce forecast deviations: (a) 22 firms manipulated their operating decisions and activities; (b) 16 firms issued operating policies expressly directed at minimizing expected forecast deviations; and (c) 16 firms attempted to suppress profits or avoid expenditures in order to reduce deviations."
> (Ferris, 1975, pp 49)

The above statement confirms two points. Firstly, that management exercises discretionary power over disclosing information. Further, it supports the previous suggestions that a securities own deviation is a relevant risk measure. This is what is suggested by Dhaliwal (1978). He says that management's intention of reducing cost of capital is apparent through its behaviour of reducing any expected profit deviations.

Smith (1976), along with a number of economists supports the above analysis that management has strong incentives to minimise the possibility of investor's worries by directing the flow of information to eliminate fluctuations in performance results, thereby, misleading investors with respect to the relative riskness of the firm.

Penman (1980), also, investigated the claim that voluntary forecasts are biased and that management only publishes forecasts when they have good news. He suggests that earnings forecasts do not result through voluntary mechanisms, that firms with poor earnings prospects and relatively low security returns do not reveal their relative position through an earnings forecast. Further, Verrecchia (1983), supports the idea that managers exercise discretion in the disclosure of information. The effect of disclosure on the price of assets the manager controls, Verrecchia adds, is the main motivation behind the manager's action to disclose or withhold information.

Jaffe and Merville (1974), long before Smith (1976), addressed this risk sharing theme between management and investors. They suggest that:

> "Over time, firms which release only good information will be identified as such by the market. At one extreme, good information from these companies will tend to be discounted by the market, because investors realise that repressed bad information concerning the company also exists. At the other extreme, repressed bad information can be identified by the market. For example, suppose that a firm releases quarterly earnings figures exactly three months early, if the reports are good. When a new three month period begins and no information is forthcoming, the market can infer that a bad earnings report is being withheld and hence bid down the stock

price. In addition, it may be difficult to keep information secret if is produced."
(Jaffe and Merville, 1974, pp 59)

Dhaliwal (1978), also, refutes Smith's argument (and the later two studies) and suggests that if managers controlled or simply did not publish adverse financial data to hide poor performance from investors, subsequent disclosure of such information due to the sanction of some regulation might result in a lower market price for the related securities and a high cost of equity capital. Further, Ross (1977) agrees that once the manipulation and misrepresentation are discovered, investors confidence in the quality of company information will be lost and that will lower the price they will pay for its securities. Consequently, manipulation of financial information is likely to increase the cost of equity capital rather than lower it.

2.3.5 Firm's Characteristics and Voluntary Disclosure

After it has been established that disclosure of financial information helps investors in assessing a security' risk, i.e. beta, and is likely, as suggested, to reduce cost of capital for companies, this section reviews the relevant literature that links some of firm's characteristics (suggested by the literature to be related to firm's risk: Ben-Zion and Shalit, 1975; Foster, 1987) with voluntary disclosure.

2.3.5.1 Diversification

One area of major relevance to informational risk is the extent of diversity of business activity (Ben-Zion and

Shalit, 1975). Companies that operate in several geographical areas or have interests in many lines of businesses are likely to disclose information voluntarily to inform the markets that they are diversified and to signal their true financial position. Also, segmental information would help investors to evaluate each segment's risk, uncertainty, revenue, and return. By disclosing such information, especially concerning their geographical and business diversification, these companies are likely to achieve both, satisfaction of investors' demands for more information and reduction of the uncertainty attached to their securities.

Empirically, Dhaliwal (1978), examined the impact of line-of-business disclosure on the cost of equity capital. For the purpose of his study, he developed a surrogate for the cost of equity capital. He used the predicted standard deviation of a firm's returns as a justifiable surrogate, an idea developed by Bierman (1974). Bierman suggests that investors, on the average, tend to under-diversify their portfolios. Based on this conclusion, Dhaliwal used a security's own standard deviation of returns as a relevant risk measure and, therefore, as another surrogate for the cost of capital. Dhaliwal concluded that segmental reporting had a favourable effect on the cost of equity capital. These effects are consistent with the premise that more disclosure reduces uncertainty about securities. The two hypotheses representing the above proposition to be tested, therefore, are:

H2 THERE IS A POSITIVE ASSOCIATION BETWEEN LINE OF BUSINESS DIVERSIFICATION AND VOLUNTARY DISCLOSURE.

H3 THERE IS A POSITIVE ASSOCIATION BETWEEN GEOGRAPHICAL DIVERSIFICATION AND VOLUNTARY DISCLOSURE.

2.3.5.2. Gearing

Another common measurement of risk used by the financial community is the debt-equity ratio (gearing). Lenders do not keep lending unlimited amounts of loans to companies; the higher the debt-equity ratio the more risky the business becomes (Popoff and Cowan, 1985 and Foster, 1987). As disclosure is made to reduce risk and uncertainty, one can relate the extent of voluntary disclosure, therefore, to the extent of gearing. One could conclude, therefore, that companies with high gearing have an incentive to disclose information voluntarily. The disclosed information would be intended to explain why gearing is high, outline future prospects, and for forecasting expected revenues resulting from these additional borrowings. The hypothesis representing this relationship tested in this research is:

H4 THERE IS A POSITIVE ASSOCIATION BETWEEN GEARING AND VOLUNTARY DISCLOSURE.

2.3.5.3 Size

Company size is considered a factor in determining a firm's vulnerability to internal and external changes. Most important, size is likely to influence companies' ability to expand and progress. For large companies, expanding their operations requires larger amount of funds than small companies. Or, capital needs of large companies are greater than those of small companies. For example, a large company

planning for 10% growth in sales would require more working capital, in absolute terms, than the requirement of a smaller one aiming at the same growth rate. One could argue, therefore, that large companies' are likely to use markets to raise funds more than smaller companies.

As a result, and to attract investors to finance their growth, large companies are expected to disclose more information voluntarily than small companies.

Another reason for the possibility of large firms disclosing more information voluntarily than smaller firms would be related to the cost of producing such information. This results from two factors: first, large companies incur lower information production costs as a percentage of the firm's total cost, and secondly, because of the lower absolute information production costs in large companies as their internal information and data collection systems are more advanced than those of the small companies.

Further, as large firms possess more information because of the volume of their activities and the sophistication of their internal information systems, they are likely to disclose more information voluntarily than small companies.

Empirically, Buzby (1975) among others (Cerf, 1962; Choi, 1972; Firth, 1976; Gray and Roberts, 1986) studied this relationship between voluntary financial disclosure and size of companies using different research settings. All the previous studies conclude that there is a positive association between size and the amount of voluntary

disclosure.

In this research the hypothesis representing the relationship between size and voluntary disclosure tested is:

H5 THERE IS A POSITIVE ASSOCIATION BETWEEN SIZE AND VOLUNTARY DISCLOSURE.

2.3.5.4 Industry Sector

Lastly, the industry sector of a company is a vital determinant of a company's risk. Some industry sectors are considered, by their nature, more risky than others (Popoff and Cowan, 1985 and Foster, 1987). For example, high-technology industries are considered more risky because of shorter product life cycles and technological obsolescence due to the rapid changes in technology. Further, oil and gas companies, as their activities are associated with a strategic product that carries some political uncertainty, are expected to bear higher risk, political and business, than, for example, brewing companies.

The hypothesis representing the above proposition to be tested, therefore, is:

H6 THERE IS AN ASSOCIATION BETWEEN INDUSTRY SECTOR AND VOLUNTARY DISCLOSURE.

2.4 SUMMARY

In summary, this chapter has identified the voluntary disclosure of financial information as a means of reducing a company's cost of capital which is the main objective of the information risk theory of voluntary disclosure. Moreover,

the signalling theory provides a plausible explanation for management incentives to supply information voluntarily, the information that reduces the risk attached to the firm's securities.

Further, the chapter has developed the main research problem of this project and some of the other hypotheses that were tested, namely, the association between voluntary disclosure and firm characteristics that are related to a firm's risk beta.

As indicated earlier, capital market based theory is not the only explanation of voluntary financial disclosure. Theories of the firm gave researchers, also, a perspective on the role of financial information and reporting that is somewhat different from the perspective that emphasises information for investment decisions. The next chapter discusses theories of the firm in some detail and shows how they can be employed to explain the disclosure of financial information.

CHAPTER THREE

THEORIES OF THE FIRM AND VOLUNTARY FINANCIAL DISCLOSURE

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THREE

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3.1 INTRODUCTION

Theories of the firm attempt to develop an articulated and coherent view of firms and why they behave in a particular manner, i.e., what is specific and unique to the firm. Or in Coase´s words, "to discover why a firm emerges at all in a specialised exchange economy" (Coase, 1937, p. 335). It is postulated that the business firm- in its typical form, the corporation - is managed, or at least should be managed, in the sole interest of the body of shareholders; employed workers and salaried managers are recruited from markets by the corporation solely to serve as instruments in achieving this goal.

This economic model of the firm has two aspects, "descriptive" and "normative". The descriptive aspect posits that the axiom of shareholders´ sovereignty is a reasonable, scientific assumption on the basis of which essential characteristics of complex operations of the business firm can be explained and predicted. According to this model, the remuneration of employee´s services is seen to be determined

externally in the market-place, and all residual income accrues to the shareholders. The behaviour of the firm is then understood as reactions to market stimuli in order to maximise the residual gain. Disclosure of financial information can be viewed as one of these reactions.

The model viewed as a normative device, on the other hand, admits that actual corporate behaviour may deviate from the norm of shareholders' utility maximisation, but asserts that not only corporate performance, but also overall efficiency of the economy, would be improved if the divergence were to be checked. The implication is that the manager ought to (be made to) act as a shareholders' agent and that the workers should refrain from making excessive wage demands beyond the competitive rate through the intra-firm bargaining apparatus.

The interest in firm behaviour started in the early 1930s with the famous work of Coase (1937). Following that article a quiet period followed until the late sixties when the trend was reversed. With the growth in managerial and behavioural theories and the advancement of ideas on firms in comparison with markets, a new and substantial amount of literature has appeared since the 1970s. This development has resulted in revisions of the general understanding of firm behaviour.

The theories to be considered in this chapter seek to construct a rational conception of voluntary financial disclosure, based upon Coase's theory of the firm. According to the theories, the survival of the accounting function in general, and in particular the disclosure of information by

firms, implies that this function is a component of a firm's efficient contracting process (Ball, 1987). These theories include the classical theories of the firm, namely, the managerial and the behavioural theories, and the newly developing agency theory. The following section review the classical theories and voluntary disclosure while agency theory is outlined in a later section.

3.2 CLASSICAL THEORIES OF THE FIRM AND VOLUNTARY DISCLOSURE

The following analysis adopts classical theories of the firm literature and employs these theories to explain voluntary financial disclosure and the incentives behind voluntary disclosure in general. For the purpose of this research the discussion will be divided into two parts. First, the managerial theories of the firm and their relationship with the disclosure of information are discussed. Next, the behavioural theories of the firm, their differences from the managerial theories, and how they could be applied to explain financial disclosure by firms are discussed.

3.2.1 The Managerial Theories

Theories of the firm can be characterised by two common features:

1. The firm is seen as a technological black box which combines market factors of production (with firm-specific resources) to produce market-able outputs. Its technological possibilities are usually represented by the production function, which specifies the amount of output correspond-

ing to each feasible combination of factor inputs.

2. The rates of remuneration for the factors of production explicitly recognised in the theory, such as capital and labour, are assumed to be determined on a market that is external to the firm.

According to the theories, the sales price of the firm's output is assumed to be determined either by the market or by the firm facing a certain demand condition prevailing in the market. Two functions are usually attributed to the entrepreneur: risk-bearing and control. However, an important feature of modern capitalism is the fade-out of the owner-managed firm from the mainstream of the economy, and the rise to a position of dominance of the large corporate enterprise. As a result, the management of activities of firms is becoming increasingly complicated, and therefore entrusted to professional managers. On the other hand, since the optimal portfolio for any investor is likely to be diversified across shares of many companies, an individual investor generally has no interest in personally overseeing the detailed activities of any firm. Managers appear to have captured the power to form corporate policy decisions.

3.2.1.1. Sales Revenue Maximisation Model

The Sales Revenue Maximisation Model, Baumol (1967), is based on the separation of decision making from control. Baumol developed the model after his own observations of the factors determining managerial salaries, prestige and

status. According to this model, there are a number of reasons why managers may rank sales performance so highly. For example:

1. Salaries and status may depend on the size of the firm, determined by the growth of sales.
2. Growth of sales will tend to make it easier for the firm to attract external finance.
3. Distributors and retailers are more attracted to products with relatively high sales turnover.
4. Growth of sales is likely to result in an increase in market share which in turn would achieve competitive advantage to companies.

GROWTH IN PROFITABILITY HYPOTHESIS:

Using the above model one could argue that management is likely to disclose information voluntarily concerning sales and growth and the relevant indicators so as to signal to the concerned groups its activities and achievements and in that, the management attain extra salary, status, and prestige. However, disclosing growth in turnover alone would not convey the message to outsiders unless it is accompanied by disclosing information on profitability and its growth. This is due to the close relationship between sales turnover and profitability. It is argued that this relationship is an important indicator of a company's prospects and its potential as it shows how management is controlling the additional costs associated with the growth in revenues (Popoff and Cowan, 1985). Additional information, furthermore, is needed to describe in some detail in what areas or products the growth has occurred and any implications for the company, and its competitive position, or market share.

However, Watts and Zimmerman (1978, 1986) argue that large firms may prefer accounting practices that reduce reported profit to reduce their political exposure. Public scrutiny, it could be argued, would be directed towards profitable firms because society would claim that high profitability is a result of excessive pricing. This would encourage governments to regulate prices to appease public criticism. However, the applicability of this argument in the U.K. is debatable.

As the economy, since the beginning of the current decade, has been steered toward less government intervention, one would find it difficult to accept that public pressure is an influencing factor. Further, political pressure, if it exists, would be directed towards large firms who are in a monopoly position.

According to the above analyses, the following hypothesis will be tested to investigate the relationship between voluntary disclosure and profitability:

H1 THERE IS AN ASSOCIATION BETWEEN FIRM'S PROFITABILITY AND VOLUNTARY DISCLOSURE.

3.2.1.2. Managerial Utility Maximisation Model

Voluntary disclosure, also, is likely to reduce the moral hazard problem between management and shareholders. This is a direct application of the Managerial Utility Maximisation Concept (MUMC) developed by Williamson (1967).

The main assumptions of this model are that the shareholding group is unable to exercise direct control over management and that firm is operating in a market structure

which is not highly competitive. In such circumstances Williamson examines the ways in which managers are able to pursue their own goals subject to being able to maintain control of the firm. According to Stein (1969), the personal goals of management, whether written or not, have a profound impact on the direction in which a firm moves and the way it operates. However, it is unlikely that management can ignore totally the influences of other groups. In particular, the interests of shareholders, employees, consumers, and the Government may determine the objectives of a firm or at least constrain the discretionary power of management. Therefore, the MUMC model is based on the maximisation of a managerial utility function which is dependent on:

1. Expenditure on staffing.
2. Managerial emoluments.
3. Discretionary investment spending.

Collectively the above categories of expenditure represent activities for which management has a positive preference. More formally, the model can be expressed as follows:

Maximise $U = U(S, M, ID)$

subject to $P_r > P_{min} + T$

where:

S= staffing expenditure, especially on specialist administrative staff under control of management.

M= Management emoluments, consisting of the economic rent portion of managerial salaries (i. e., payments above the minimum necessary to keep the managers in their present jobs) and corporate consumption in the form of "benefits in kind", which may have tax

advantages and/or attract less attention from other groups in the firm.

Id= discretionary investment expenditure of profits, that is, the ability to allocate profits above the amount required to cover dividends to shareholders and the funding of projects necessary to fulfil expectations of the growth of the business. An example of this form of expenditure would be the undertaking of a challenging project even though it has poor profits prospects.

P_r= reported profits as published by the firm.

P_{min}= minimum (after tax) profit required to meet the expectations of shareholders.

T= corporate tax.

It is worth noting that this is a broad objective function in which the goals of management are placed in the context of profit.

Basically, the Williamson model is an explanation of how management can divert potential or realised profits from shareholders; for example, assume that the potential profit for a period is P_p, then $P_r = P_p - M$. Clearly, therefore, it is in the interests of the management to increase P_p if they want to increase M during that period. The ability to do this is reinforced by the high probability that only senior management is privy to information about potential profit.

Given the assumption of a fragmented shareholder group, it is likely that divulging information is one area where management has discretionary power. Disclosure of information by management, accordingly, helps management to signal to outsiders, e.g., shareholders, that M = 0 and therefore $P_r = P_p$. The disclosing of information becomes more appropriate and more likely as outsiders' share in the company rises (this relationship has been stated as a

hypothesis in a later section).

3.2.1.3. Corporate Growth Maximisation Model

The management's share of capital hypothesis can also be supported by the corporate growth maximisation model. At a time of continuous take-over raids, financial disclosure may help management in their defence against predators and reduce the risk of being dethroned. Marris (1964) suggests that managers are concerned about their job security in the sense of keeping control of the firm. The potential threat to this security is seen as the possibility of a take-over raid by another company, resulting in a new management team or reduced powers of the original management. The motivation for a take-over raid arises from a depressed share valuation of the firm below its economic value as judged by the bidding firm. In this context Marris argues that managers must find the right balance in their dividend/retention policy. Management failure to pay attractive dividends to shareholders, especially in cases where shareholders are only interested in short-term gains, will tend to depress the share valuation relative to other firms with a similar risk profile. If, therefore, job security alone were the determinant of managerial benefits, dividends would be maximised to support the share price and minimise the risk of take-over. But the primary goal of managers is that of increasing the size of the business and this involves a trade-off with dividend payouts assuming that managers find retained earnings the most attractive source of funds for expansion.

As a solution to this dilemma, the disclosure of information becomes the appropriate way by which management communicate the relevant facts and explain the situation to the shareholders. This becomes important when a threat of take-over is more visible, i.e., where managers have no controlling or substantial shareholding in the company. By disclosing information, management distances the threat of take-over and holds on to its managerial power, and at the same time, the retained earnings that are necessary to continue the growth process.

One could suggest, however, that by disclosing the actual financial position, management might be in a disadvantaged position if the disclosed information reveals their incompetence. The opposing argument, nevertheless, is that sooner or later the real condition would be revealed in some way or another and management would not benefit by covering up the bad news. Any cover-up is likely to badly damage management´s reputation and therefore their future employment prospects.

3.2.2 Behavioural Theories

The managerial models outlined above present a more realistic framework to capture the significance of managerial discretion and financial disclosure in situations where the ownership group is fragmented. To this extent the models are useful additions in terms of both their explanatory powers and their predictive qualities. Like the early informational risk and stewardship models, the managerial models yield specific predictions based on the objective function. For example, it was deduced from the

sales model that management would disclose information concerning growth so as to signal to the concerned groups its success. The managerial models also introduce the possibility of an objective function consisting of conflicting goals, as in the Marris Model, with the complex trade-off between growth and valuation. A common feature of the models, however, is the development of a single objective function to be maximised in line with the completely rational behaviour of economic man.

The behavioural models, in sharp contrast, reject the concept of expressing corporate objectives as a single function to be maximised. This results from the behaviourists' rejection of the concept of "economic man" and their preference for the concept of "satisfying" behaviour as developed by Simon (1957). According to Simon, the decision makers set a "satisfactory" goal and searches for possible courses of action that will satisfy this goal.

Building on the foundations laid down by Simon, Cyert and March (1963) developed a general model of the firm from the perspective of organisational theorists. Their central theme is that the process of decision making within a large firm is the key factor determining the translation of information into decisions.

Cyert and March view firms as a coalition of different interest groups including managers, shareholders, employees, creditors, the government, etc. Unlike the managerial models, Cyert and March do not see a single universal objective function emerging from this situation but rather a sequential attention to different goals according to the

perceived importance of that individual or group to the coalition at the time. They argue that the objectives of the coalition are determined by three factors:

1. The bargaining process by which the composition and general terms of the coalition are fixed.
2. The internal organisational control process by which objectives are formulated and elaborated.
3. The process of adjustment to experience by which the coalition agreements may respond to environmental changes.

With regard to the composition of the coalition, different groups are likely to pursue their interests with different levels of influence. The concept of "side payments" is used to explain how an individual or group might be pacified in circumstances when their personal interests are not completely satisfied. Side payments may take the form of cash or other means, such as increased status in the formal organisation or the appearance of increased status by such things as office size and furnishings.

If the individual or group has more influence on the coalition the side payments may take the form of some policy commitment. The shareholder group is seen as a relatively passive group whose demands are easily met for most of the time by policy commitments. The remaining members of the coalition, who want more than side payments, are labelled the management or "active" group and it is this group that has most influence on the primary objectives of the business. According to Cyert and March, instead of seeking maximum profits, management seeks to achieve a small number

of operational goals framed in terms of aspirations levels for the period. Therefore, there is a high probability that goals will be conflicting to some extent. It could be argued, then, that the activity of disclosing financial information results from the above situation. As the different groups are likely to pursue their interests, and, at the same time, the "active" group, the management, has the most influence, the function of disclosing information serves to alleviate the doubts of the other groups, mainly the shareholding group (this view differs from agency theory, which will be explained in later sections, in that management is recognised implicitly here while in agency theory management is acknowledged explicitly as an important economic agent in coalition). Management would disclose information to satisfy these groups and allay their fears. Further, the information would aim to indicate that management's main objective is maximisation of shareholder wealth. As suggested earlier, this task becomes more essential when outsiders' share of capital is increased.

MANAGEMENT'S SHARE OF CAPITAL HYPOTHESIS:

Using the previously described models, namely, the **managerial utility maximisation model**, the **corporate growth maximisation model**, and the **behavioural theories**, one could hypothesise the relationship between management's share of capital and voluntary financial disclosure as follows:

H2 THERE IS A NEGATIVE ASSOCIATION BETWEEN MANAGEMENT'S SHARE OF CAPITAL AND VOLUNTARY FINANCIAL DISCLOSURE.

The behavioural models serve also to explain the development of financial disclosure over time. With regard

to the composition of the coalition, there have been some changes recently, with the public in general and shareholders in particular gaining more influence in the coalition, and their opinion is being notably observed (The Financial Services Act, 1986). This change has led to increasing the prescribed amounts of obligatory disclosure.

As a description of modern firms, the Cyert and March model scores highly in terms of its realism. Furthermore, it offers some interesting insights into the way in which corporate objectives are formulated and the causes of change over time.

3.4 AGENCY THEORY AND VOLUNTARY DISCLOSURE

This section discusses the use of accounting information within the framework of the stewardship function, or, agency theory. One important facet of this theory is that accounting theory has come full circle back from the normative prescriptive approach to the agency theory approach, the old stewardship function, as the major goal of accounting.

According to agency theory, firms are viewed as legal artefacts designed to provide a contractual basis for sharing risks and providing incentives. Although accounting information is useful for predictive as well as retrospective purposes, i.e. the investment decision demand, this theory emphasises that it is this contractual use that is the principal objective of accounting information. For decades, leading theoreticians tried to prove that unless

financial accounting and information in particular serve shareholders in their investment decisions, it has little raison d'etre. The agency theory reinstates this stewardship function and illuminates it from an entirely different and refined perspective. In comparison with classical theories the manager in principal-agency theory is recognised explicitly as an active partner, while in the classical theories the manager appears only implicitly as an agent to the shareholders (Aoki, 1983).

A study group of the AICPA in the USA issued a report which indicated that reporting on management's stewardship has long been recognised as a principal purpose of financial reporting and that stewardship refers to the competent management of resources and the implementation of plans for maintaining and using them (AICPA, 1973). This concept of management's stewardship was emphasised earlier by Freze and Mautz (1972). They argue that the view of accounting statements is that they represent a stewardship report by management in which it accounts for its use of the resources trusted to it by the owners of the company. The Councils of the Professional Accounting Institutes (1969) in their memorandum to the U.K. Board of Trade had suggested that the proposed Companies Act should include two types of companies, proprietary and stewardship and that they differed fundamentally from each other in that the stewardship company's owners do not participate in management but entrust it to outside appointees. They concluded that disclosure of information by the management of stewardship companies should be appropriate to their characteristics. Managers are fiscal agents for the owners

of the firms.

To examine the relationship between the stewardship function and financial reporting, an understanding of the historical development of the stewardship concept is warranted. This relationship is discussed in the next section. In addition, agency theory, the modern label of the stewardship concept (Ronen, 1979) will be discussed in a later section.

3.4.1 Early Development of the Concept

Chen (1975) traces the concept back to the beginning of Christianity. The proposition of christian theologians is that all property belongs to God, and God is the real owner. God created the earth and things, the goods and resources therein, and gave them to man as gifts. Therefore, man is the steward of God and has only derived ownership. In order to use this properly, possession of the property is necessary. Human ownership emerges when possession of property takes place. Possession is, however, not an end in itself. Rather, it is a means to make the use of property possible. In other words, the human owner, hereafter referred to as owner, has his responsibility to use the property in order to justify his right of possession. This is probably the original concept of the stewardship responsibility.

The stewardship concept, as have other related concepts, such as property and ownership, has changed over time. Changing economic conditions may require changes in social philosophy, or a prevailing social responsibility may

influence economic conditions. During the Medieval Period, feudalism was a system of government comprising a group of nobles. These nobles were agents of their lords to whom they assumed a stewardship responsibility. The noble had a responsibility of taking care of the welfare of the property (Clough and Cole, 1952; cited in Chen, 1975). During this period the stewardship concept was characterised by the view that both the owner's and the society's benefits are to be served.

As a result of the development of Capitalism, this concept of serving both the owner and society has faded away. Under the new concept, the purpose of using property is entirely for the owner's interest. Adam Smith (1880), cited in Chen (1975) strengthened this concept, i.e. the natural right of an individual to acquire and utilise property .

The above-mentioned concept of stewardship was highlighted by the special records and books of accounts for the new accounting period. Those books and records were used to know what goods the merchants had in hand in the previous accounting period and provided information and a check on subordinates (Yamey, 1962). During seventeenth and eighteenth century accounting, the account-books revealed the scope of the stewardship concept which was reflected in the stewards concern over valuation methods and profit-and-loss estimations (for a review of accounting practices in this period see: Yamey, 1962).

The contemporary small businesses economy is a continuation of the last century concept of stewardship.

This philosophy states that every economic agent in the economy is rational enough to maximise his personal self-interest, which Adam Smith considers is the primary inspiration force to economic growth. Besides small businesses expansion, a new spirit of capitalism has emerged since the end of last century. This new spirit has materialised through the growth of business in terms of size and the rise of joint stock companies. A new business organisation form has accompanied these new big companies, where a managerial class has evolved. Owners have had no continuous or close contact with the affair of their business or with the accounting books. To a large extent, owners have to rely for news of the outcome of the activity of their company on information supplied by the management. As a result, small shareholders are no longer owners of corporations in the traditional sense. They grant the management all power to control and utilise companies' resources. The ownership of companies, accordingly, is highly dispersed and the power of conducting companies' affairs is shifted to management. Management becomes the steward of the shareholders with the responsibility to realise their objectives, and the financial statements are sometimes referred to as reports of management's stewardship (Chen, 1975). The implication of the stewardship concept of accounting leads to management's reporting and disclosure policy.

3.4.2 Post-1970 Developments

The more recent contributions to the economics of the firm focus attention on three general areas: principals and

agents, markets versus firms, and strategic firm behaviour. The area that is related to the subject of information, and financial information in particular, is the area of **principals and agents**, or **agency theory**. The discussion will be concerned with relationship between owners (principals) of the firm's capital and the managers (agents) of the firm. The agency model applies also to the relationship between manager and managed, but this area is outwith the scope of this research.

According to this theory, the principal commands the agent to take actions on the principal's behalf, motivated by a monetary reward. The environment in which all such actions are undertaken is one subject to uncertainties. In addition, the two actors, principal and agent, are likely to have differing information on matters of this uncertain world.

3.4.3 Basic Concepts

An important concept in this theoretical framework is that separation of control and risk-bearing between the manager and the shareholder is explicitly recognised. In this respect, the principal-agency theory parallels the classical theories. However, in the classical theories the manager appears only implicitly as an agent to the shareholders, while in the case of the newly developing principal-agency theory the manager is recognised explicitly.

Furthermore, explicit consideration of the consequences of uncertainty and information are essential for an understanding of the firm. Including uncertainties in the model means the outcomes are not linked in a deterministic

manner with the inputs. As a result, knowledge concerning outputs does not explicitly indicate anything about effort or skill. If a soccer team wins a game of football, that does not necessarily mean they were the best team. Equivalently, if a firm reports big losses, this may be because of the strength of the pound, over which it had no control. Should the management be sacked? Accordingly, information and uncertainties are important factors that affect resource allocation within firms and they give rise to a number of problematic features, i.e. different economic actors do not share in common the same sets of information.

Information asymmetry is basic to an understanding of the agency model through which many perspectives of the organisation of the firm have been considered. Also, information asymmetry is the motivating force behind screening and signalling models which provide an explanation of a number of aspects of observed firm behaviour, the subject of a later section.

3.4.4 The Agency Model

The simplest model assumes that self-interested individuals enter into an implicit or explicit contractual arrangement where a principal delegates to an agent the responsibility for selecting and implementing an action. The agent is rewarded by the principal, with the principal being the residual claimant to the outcome of the agent's action, after payment of the reward. The principal's problem is to negotiate a contract defining the agent's compensation, knowing that their interests are not in complete agreement.

In solving the problem, both actors are assumed to be motivated by self-interest. Therefore, the agent selects an action, given his/her private information and the compensation plan, in order to optimise utility. Also, in the light of the agent´s self-interested actions, the principal selects a compensation plan to maximise utility.

The principal-agent problem, according to the game theory, is a two-person game. As principal and agent are driven by self-interest rather than communal interest, the game is a non-co-operative one. However, Aoki (1983) see the firm as a coalition of interests and accordingly analyses the relationships between the actors in terms of a co-operative bargaining game. Although this explanation is contradicting the contractual viewpoint, both ideas look at the firm as encompassing a collection of interests.

From the viewpoint of the outcomes, the game is considered a non-constant sum game, as different actions give rise to different total outcomes.

In the economics of the firm literature, one can observe two approaches in analysing agency theory. Jensen and Meckling (1976) call their approach **the positive theory of agency** and emphasise the institutional details of contracting and control. Spence and Zeckhauser (1971) and Ross (1973) label their approach the **principal-agent theory**. This method tends to be more formal and helps to clarify the precise informational assumptions required for any particular model. However, both approaches look for contracts which minimise agency costs. Raviv (1985) views both approaches as one and assumes that they aim at

developing a positive theory of how contracts are designed for the best interests of all actors involved. The framework of agency theory is that firms render themselves into nothing more than a nexus of contractual relationships.

The two basic problems associated with the informational asymmetries of agency models are commonly called moral hazard and adverse selection. Moral hazard arises when the principal and the agent share the same information up to the time when the agent selects an action, but after that the principal is only able to observe the outcome not the action itself. A shareholder, for example, cannot observe a manager´s daily activities but is able to observe the outcome. The principal has inferior information to the agent. The agent knows the action chosen, but the principal is unable to tell from observing the outcome alone which combination of action and state of the world has occurred. As a result, costless information about effort is always of value to the principal. In addition to the agent´s effort, the pay-off to shareholders, which comes from the output, depends on outside factors.

The other problem, adverse selection, arises when the agent can use some information in selecting an action while the principal has no access to such information. Then, even if the agent´s action and the outcome are jointly observed, the principal cannot know whether the action was optimal given the agent´s private information. For example, a shareholder may not share a manager´s information that a higher profit might have been attained with a specific method of foreign exchange management, in which case the

manager has a strong incentive to suppress such information.

According to new developments in the theory of the firm, (Alchian and Demsetz (1972); Williamson (1964, 1975); Jensen and Meckling (1976, 1979); Fama (1980); Fama and Jensen (1983); and Ball (1987)), there are different incentives to establish different organisational forms (e.g. corporations, partnerships, etc.) and there are costs generated by those organisational forms. One particular set of costs that arise from the conflict of interest among the various parties contributing to the firm is the costs of monitoring and enforcing the contracts between the key economic actors (the agent and the principal). These costs are called agency costs and they include the costs of structuring, monitoring and bonding a set of contracts between the parties involved.

Jensen and Meckling (1976) present a clear analysis of agency costs. According to them, there are three types of agency costs:

1. Monitoring Costs. These costs are paid for by the principal for monitoring the agent using procedures such as budget restrictions, operating rules, and reporting financial information (a report of the output).

2. The bonding costs borne by the agent to ensure that the principal´s interest will not be harmed or to provide for retribution if such harm occurs. Such costs include audit costs and cost of explicit bonding against malpractice. An additional cost that is likely to be

borne by the agent is the cost of disclosure if it is more cost effective for management rather than external parties to provide information.

3. The reduction in the value of the firm's shares which arises if current and potential investors detect that managers receive benefits and perquisites more than their share in the firm's capital.

According to Jensen and Meckling, the main assumption of the agency relationship is that all parties behave rationally and they expect others to behave the same way. This rationality assumption implies that the agency costs of a contractual agency will be included explicitly into the contract itself. For example, the pricing of debt would include the anticipation that equityholders would try to transfer wealth from the bondholders.

Another important result from the application of rational expectations is that security holders will not, on average, lose as a consequence of the managers pursuing their own self-interest. In the capital markets, the security price incorporates an unbiased expectation of the manager's actions and the consequences for the value of the security.

Similar problems arise if the firm is owned by diversified investors (multi-person) who do not manage it. Investors must hire a manager and their contract with him determines his motivation. Consequently, an incentive-informative report (concerning the business) will be valuable to them, and the more incentive-informative the

report is the more valuable it will be. The owners can diversify, hence, they do not seek to share risk with the managers. But they will still value a report of the output. A report of the output is incentive-informative, particularly if the manager could otherwise retain the output for his own use, and a report of the output would be a key element in the risk sharing agreement that exists among the owners.

To gain further insight into the demand for financial accounting information, other variations of the basic principal-agent model warrant reviewing. First, the basic model considers a single period, but most accounting issues involve interrelationships between the actions and events in one period and the results in subsequent periods. Multi-period models are considerably more complex than the basic model and only a limited amount of analysis has been done on them (Lambert, 1981; Fama, 1980; and Wilson, 1980). Since post-decision information for one period becomes pre-decision information for all subsequent periods, the distinction between post-decision and pre-decision information in a multi-period context becomes less clear. This implies that planned production of additional public information at a particular point in time has value to a decision maker if it can be used either to enforce better prior contracts (stewardship demand) or to make better subsequent decisions (decision-making demand). Informative-ness with respect to the state includes all events that influence aggregate output and asset specific variations in output, and agents actions are likely to be important

information characteristics in multi-period contexts.

A second important variation in the basic model is the recognition of contracts with creditors, such as banks and bond holders (Jensen and Meckling, 1976; Smith and Warner, 1979; Holthausen, 1981; and Leftwich, 1981). Creditors often share risks with managers and owners of a firm because, while their contracts may require fixed payments, these amounts cannot be paid if the firm goes bankrupt. Management actions can influence the probability of bankruptcy, and action that increases the value of the common stock can sometimes increase probability of bankruptcy. Creditors recognise this and the prices of the capital they provide depend on their beliefs about the actions that will be taken. In order to obtain a favourable price the owners of a firm may be motivated to restrict the actions taken by management. Post-decision accounting information is often an important means of implementing those restrictions, e.g., credit arrangements often impose restrictions, such as a liquidity ratio, using accounting data.

3.4.5 Criticism of Agency Theory

Before reviewing the implications of agency theory, and for the purpose of completing the discussion, it is necessary to outline some of the criticism of the theory. As with any new theory, agency theory has created as much controversy as interest. However, most of criticism of the theory is directed at the methodology of the theory and at some of its basic assumptions.

The criticism of agency arises from two related areas. The first controversy stems from what Watts and Zimmerman

considered to be a good theory and from their basic assumptions. The objective of the positive agency theory is to explain and predict accounting practice. Watts and Zimmerman (1986) suggest that the positive agency theory is distinguished from the classical normative theory. A normative theory seeks to prescribe what ought to be which in turn depends on both the objective and the objective function of the theory. In response, Whittington (1987) contends that agency theory is not free from value judgements or prescriptive implications. He argues that at the most basic level, the question asked implies a prior view of what is an interesting hypothesis, and at the level of empirical testing, value judgements can influence the choice of maintained hypothesis. However, agency theory literature has always assumed strong beliefs in efficient markets and the single period capital asset pricing model (CAPM). Puxty (1985) echoes this point of view as well as Christensen (1983). Tinker, Merino and Neimark (1985) also suggest that the notion of a positive accounting theory is an illusion because researchers cannot be value-free or socially neutral. They list some value judgements and "articles of faith" that underline most of capital market research. One of such articles of faith they refer to is the assumption that the stock market remains an important economic institution under modern capitalism when only a small fraction of new capital raised is secured through the stock market: the primary source of funds being retentions.

Christensen (1983) argues that researchers face problems at two levels. At the primary level, are problems

that concern the accounting entities. The second level deals with meta-problems which he considers related to the accountants, managers, and users. He suggests that the positive theory approach to accounting is of the kind in the meta-level where it is concerned with describing, predicting, and explaining the behaviour of accountants and managers, but not that of accounting entities.

For the purpose of this research, agency theory will be used without taking sides on the issue of positivism or normativity of the theory. This is considered to be secondary to the issue of the substance of the theory. This research, as it will be seen later on, uses variables that represent the firm as an integral economic unit. These variables reflect the interaction amongst firm constituents or the behaviour of accounting entities. The size of firm at any date represents a summation of the transactions that have involved investment decisions, financing decisions, and a wide range of economic factors.

3.4.6 Agency Theory Implications

The implications of agency theory are far reaching and cover all areas of finance, accounting and auditing. As this research is concerned with issues related to external financial accounting no attempt will be made to address the implications in the other areas.

The first important implication of agency theory is on financial disclosure and the need for regulating the disclosure of information. Relying on Coase (1937, 1950), communicating information arises between the various parties as an efficient solution to these conflicts-of-interest.

Financial information that is included in annual reports is hypothesised to have arisen as part of this voluntary contracting process and it still serves to lessen some of the costs of control in modern corporations. It may be possible to increase the welfare of the principal without reducing the welfare of the agent by allowing communication between the principal and the agent. Disclosure of information at the time of pay-off realisation allows principals to make better estimates of the effort levels selected by the agents. This, therefore, allows a greater degree of risk sharing to take place without weakening the motivations to agents to act in the interests of their principals. The release of such information can help to eliminate any adverse selection problems arising from the agents access to insider information.

As accounting numbers represent the outcome of agent's actions, both the shareholders (the principals) and the management (the agents) rely upon the figures to administer the agency contract. Specifically, the accounting statements play an important part in monitoring the agent. Public dissemination of accounting numbers, is likely to help create an informed secondary market for shareholders' and bondholders' investments (Ball, 1987). Further, the numbers in the accounts is suggested to be used by the principal to set restrictions on the agent and are the base to compensate him. In the case of bondholders, the accounting numbers govern how much extra debt the company can borrow. It is argued, therefore, that management would manipulate the accounting methods that produce the accounting numbers so

that they achieve their objectives, i.e. higher compensations from the shareholders and ability to borrow more funds from debtholders and creditors. Recent studies have tried to test this phenomenon and explain the use of specific accounting methods (Zimmerman, 1980; Hagerman and Zmijewski, 1979; Zmijewski and Hagerman, 1980; Collins, Rozeff and Dhaliwal, 1981; and Leftwich, 1983). The studies have found an association between the use of accounting methods and the contractual agreements between firms and debtholders.

3.4.7.1 Size Hypothesis

The balance of evidence from other studies, in particular Watts and Zimmerman (1978), Dhaliwal (1980), Lilien and Pastena (1982), Daley and Vingeland (1982) and Healy (1985), is that companies do choose accounting methods in order to reduce agency costs and not in a random manner. Firm size is considered as the variable that most consistently and positively affects agency costs (Jensen and Meckling, 1976). They posit that because large firms need for external financing is greater than the need of small companies, agency costs for large companies is higher than that of small companies. To reduce these added agency costs, one could argue therefore, that large companies are likely to disclose more information than small companies.

Empirically, Salamon and Dhaliwal (1980) investigated the relationship between size and voluntary disclosure. They concluded that a positive relationship exists between size, as a proxy for dependence on outside capital, and voluntary disclosure.

A related device used by management to reduce agency costs is voluntary auditing. Using an independent external auditor, it could be argued, is an activity that involves disclosing information voluntarily through the auditors. To reduce the monitoring costs arising from agency conflicts of interest, management may offer to have the firm audited by an external independent auditor. Chow (1982) used the agency theory model to investigate management's incentives to employ external auditors voluntarily. He postulated that auditing was more probable for larger firms since the marginal costs of auditing decrease for larger firms and there is a greater total potential wealth transfer, i.e., wealth transfer from debtholders and shareholders to management.

Chow's non-parametric tests indicate that voluntarily audited firms had statistically significantly larger size. His logit analysis also resulted in a statistically significant positive relationship between these variables.

The hypothesis representing the relationship between size and voluntary disclosure in an agency theory context is:

H3 THERE IS A POSITIVE ASSOCIATION BETWEEN SIZE AND VOLUNTARY DISCLOSURE

3.4.7.2 Management's Share of Capital Hypothesis

One notion that is suggested affects the disclosure of information is the extent of outsider share ownership. Jensen and Meckling (1976) have shown analytically that agency costs increase with the increase in the outsiders

ownership share. They deal with the situation in which an entrepreneur raises funds by selling shares in the firm. The entrepreneur sells off most of the firm, retaining a fraction of the capital and continues as manager. The incentives for the manager to work and to consume perks at the firm´s expense change as a result of going public. The manager receives the same benefits from avoiding work and from consuming perquisites whether the firm is wholly owned or partially owned by the manager. However, the manager shoulders only the fraction of the cost comparable to his share in the firm. If potential investors expect they are dealing with such kind of managers, an opportunistic manager, they will undervalue the firm´s shares. This reduction in the value in the shares is called the residual loss, which is one element of the agency cost. To reduce this cost, managers disclose information to reveal their actual work and consumption of perquisites and alleviate outsiders suspicion. This suggests the hypothesis:

H4 THERE IS A NEGATIVE ASSOCIATION BETWEEN MANAGEMENT´S SHARE OF CAPITAL AND VOLUNTARY DISCLOSURE.

3.4.7.3 Tax Status Hypothesis

A related indication of the extent of managers controllability of firm´s affairs is tax status. According to the Inland Revenue regulations (Income and Corporation Taxes Act 1970, Section 282), a "close company" is one which is under the control of five or fewer persons or their associates or is under the control of its directors. A listed company is not a close company if shares carrying not less than 35% of the voting power are unconditionally and

beneficially held by the public.

The consequence of this classification is that a close company is required to distribute at least 50% of trading income less Corporation Tax and all of its investment income less tax, unless large retentions can be shown to be needed for the continuing requirements of the business. If insufficient income is distributed, the company is assessed as having distributed the required total; the difference is apportioned to the shareholders, treated as paid to them.

If a company is a "close company", therefore, the statue assumes it is closely controlled by few shareholders or their agents, the management. Those few who control the company, accordingly, have direct access to the books and there is no need for the company to disclose any additional information to the public at large. Therefore, the hypothesis to test this argument is:

H5 THERE IS AN ASSOCIATION BETWEEN A COMPANY'S STATUS, "CLOSE COMPANY" OR "NOT CLOSE COMPANY", AND VOLUNTARY FINANCIAL DISCLOSURE.

3.4.7.4 Number of Substantial Shareholders Hypothesis

Another notion associated with outsiders share of capital is the number of persons (natural or legal) who own a substantial shareholding in the company, apart from the managers. It would be valid to assume that the larger the share of an investor in a firm the more vital this investment to her/him which in turn will lead to monitoring the investment more closely. The importance of substantial shareholdings and the role of such holdings is recognised by Company Act 1985 and the City. According to the Act,

shareholders of 5 per cent or more of any public limited company should declare their identity. Recent suggestions in the financial press have indicated a growing concern over these substantial holdings and the government is now suggesting a reduction of the share to 3 percent.

Further, the management of the investee would look out for any movement of such investments with vigour mainly to watch any movements that could lead to a take-over bid. Managers, for fear of being removed from their jobs would try to keep such an important group of investors informed. This explanation echoes the previously discussed Corporate Growth Maximisation Model where disclosure of information is seen as a defence against predators. This suggests the following hypothesis:

H6 THERE IS A POSITIVE ASSOCIATION BETWEEN THE NUMBER OF SUBSTANTIAL SHAREHOLDERS AND VOLUNTARY DISCLOSURE.

3.4.7.5 Executive Share Option Schemes Hypothesis

The use of accounting information in contracts between agents and principals is suggested by Smith (1982) and Fama (1983). They argue that the compensation to managers is linked to firm performance. This is very clear in firms where the managers are the owners and equity agency cost is very small. In the case of manager-controlled companies, where the ownership is scattered, the agency cost of equity is high; here, agency cost is the perquisite consumption of managers and is borne by the owners. Healy (1980) suggests that owners in this case link the compensation of managers to their performance measured by the accounting numbers.

Another way of using accounting numbers in the contracting process is through profit sharing and share options. Fama (1980) suggests that managers gain from profit-increasing accounting methods if their share in the profit is tied to their performance which, in turn, is measured by the accounting numbers. In the case of share options, accounting numbers are assumed to affect share prices and therefore using profit-increasing accounting methods would increase the managers' utility. Supporting this argument is the increasing concern of company management with the formulation of accounting standards which indicates at least a belief that financial reports do provide significant information for the evaluation of company performance (Zeff, 1978; Solomons, 1986).

The recent economic literature has analysed debt and management compensation contracts (Jensen and Meckling, 1976; Smith and Warne, 1979; and Fama, 1980). In explaining the form of those contracts, theorists assume information is produced to the point where private marginal costs equal private marginal benefits, and given that information, the market price of securities and the market compensation for managers incorporate rational expectations of future events.

One popular form of incentive schemes used by companies is the Executive Share Option (ESO) scheme. According to this plan, executives are given the option to buy shares from the company for a predetermined price and within a specific period of time. As a result of this arrangement, managers will be encouraged to increase the profitability of the business which would be reflected in the share price

and, eventually, increase their personal wealth. In this situation, disclosing information concerning the business would help in reducing future uncertainties (as was argued in the previous chapter) and help the markets to value the shares upward reflecting their real value. This suggests:

H7 THERE IS A POSITIVE ASSOCIATION BETWEEN THE EXISTENCE OF EXECUTIVE SHARE OPTION SCHEMES AND VOLUNTARY DISCLOSURE.

3.4.7.6 Gearing Hypothesis

Agency costs arise from relationships other than that between managers and shareholders. Fama and Miller (1972) among others (see Jensen and Meckling, 1976; Smith and Warner, 1979) have suggested that agency costs are higher for companies with proportionally more debt in their capital structure. Consider a company that is currently able to meet its debt commitments but will not be able to meet a future payment. Failure to repay debts will put a firm into bankruptcy. Also assume that a value-increasing investment is available at the current time but will not be available when the firm fails to meet the debt repayment and is put into bankruptcy. If the manager owns shares, he has no incentives to make the investment because all the returns accrue to the debtholders. Instead, the manager has an incentive to forego the investment and pay as large a dividend as legally possible at the current time. That action reduces the total value of resources available to the parties to the firm, or results in agency costs as debtholders will discount the value of debt to take account of this possibility.

As management has an interest in not reducing a firm's value, disclosure of information could be used, accordingly, to avoid any reduction in the value of its investment. This relationship was also hypothesised by Leftwich, Watts, and Zimmerman (1981). However, their empirical results did not support their predictions.

For this research, the following hypothesis is to be tested:

H8 THERE IS A POSITIVE ASSOCIATION BETWEEN GEARING AND VOLUNTARY DISCLOSURE.

3.4.7.7 Diversification Hypotheses

Public concern would also be directed to companies diversified in more than one line of business. This would be the result of investors and the political groups worrying over the margins the company is making from the different products or markets (Watts and Zimmerman, 1976). Excessive profit in any of the divisions could attract criticism and would render the company to more scrutiny and investigation. Also important is a firms' market share in the different products it produces. Any suspicions of monopoly over any product, service, or market would lead to a reference to special investigations and as a result would damage the company's reputation and its financial position. To clarify their positions and avoid such problems, companies are expected to disclose more information concerning their operations and mainly information in relation to divisions.

However, the counter argument to the above opinion is that companies would not disclose detailed information as this will help their competitors (Gray and Roberts, 1986).

Revealing such information could encourage rivals to pursue profitable products or strategies and cause more difficulty for the company. Moreover, disclosing segmental information, and especially in cases where some segments are making excessive profit, would invite public concern and could result in a government investigation.

To validate the above analysis the following hypothesis will be tested:

H9 THERE IS AN ASSOCIATION BETWEEN THE EXTENT OF LINE OF BUSINESS DIVERSIFICATION AND VOLUNTARY DISCLOSURE.

Political pressure and exposure applies also to geographically diversified firms. Disclosure of information may be intended to convey to the public and the political institutions how the company is contributing to the national economy. Also, geographically diversified companies may believe that disclosure would encourage other firms to trade with such companies because of their widespread experience.

From another point of view, disclosure of information may be inspired by the expectations of positive effects toward the company from foreign countries, as a consequence of the firm´s experience in handling foreign operations. Operating in more than one geographical market becomes a prestigious activity that companies are willing to publicise.

For the opposing argument, one could say also that disclosing information regarding company´s operations and activities in delicate regions would attract public concern.

For competitors, disclosing geographical information would induce them to explore the profitable markets and avoid the loss-making areas.

Accordingly the next two hypotheses to be tested are:

H10 THERE IS AN ASSOCIATION BETWEEN GEOGRAPHICAL DIVERSIFICATION AND VOLUNTARY DISCLOSURE.

H11 THERE IS AN ASSOCIATION BETWEEN FOREIGN OPERATIONS AND VOLUNTARY DISCLOSURE.

3.4.7.8 Non-Executive Directors Hypothesis

Looking at corporate annual reports and reading the financial press, one can observe that companies are increasingly including non-executive directors on their Board of Directors. The job of such directors is usually advisory. They bring and convey to the executive directors their experience which comes from their public and business life. These directors would also bring their wider business knowledge which may include better ideas and current (best) practices from other companies. Although the final decisions concerning accounting policies and disclosure are usually taking by the executive directors (Gray and Roberts, 1986), it is reasonable to conclude that non-executive directors, by virtue of their positions and presence, would influence their fellow executives and motivate them to disclose information about the firm for the purpose of reducing public concern in relation to the firm's activities. This variable represents one of the monitoring devices used by management to reduce agency costs (Leftwich et al, 1981). The hypothesis to test the above assessment is:

H12 THERE IS A POSITIVE ASSOCIATION BETWEEN THE PRESENCE OF NON-EXECUTIVE DIRECTORS AND VOLUNTARY DISCLOSURE.

3.4.7.9 Size of the Auditing Firm

Lastly, an additional incentive have been suggested by the literature as influencing disclosure of financial information, namely, the auditing firm (Singhvi and Desai, 1971 and Firth, 1979). They argue that large auditing firms are more conscious of the public concern for information, and accordingly, they would press their clients to disclose more information. This will result in the enhancement of their position as the leaders of the profession. This suggests:

H13 THERE IS A POSITIVE ASSOCIATION BETWEEN THE SIZE OF AUDITING FIRM AND VOLUNTARY DISCLOSURE.

3.5 SUMMARY

This chapter has analysed theories of the firm that explain voluntary financial disclosure. These theories are based on the idea that financial disclosure is one of the functions that is performed by firms as part of their normal course of business. Theories of the firm perceive the role of financial reporting and disclosure somewhat differently from the perspective that emphasises information for investment decisions (capital market theories).

Classical theories of the firm consider financial accounting as a tool (contracting process) to reduce conflicts of interest among the main parties of a firm (i.e., managers and shareholders). Efficient contracts reduce the conflicts of interest, thereby providing managers

and other parties with incentives to maximise the value of resources that is shared among the parties. Therefore, managers and other parties to the firm have incentives to provide financial reporting that is cost effective in maximising the value of the firm.

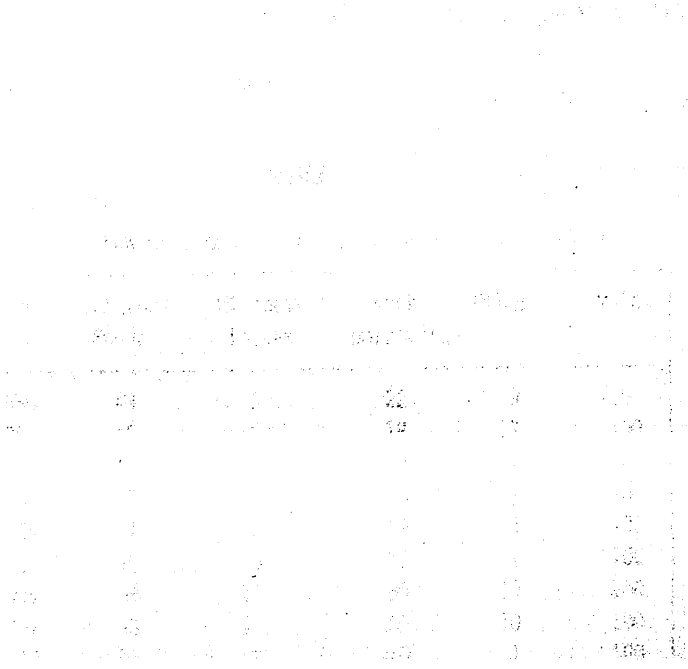
While classical theories recognise management as one of the parties involved in the contracting process, it appears in the analysis only implicitly as an agent to the shareholders. In the case of the newly developing principal-agency theory, however, management is recognised explicitly as an active agent trying to maximise its share in the value of the firm's resources.

All theories of the firm, however, can be viewed as different facets of the transaction costs theory. Disclosure of financial information voluntarily is a contractual process intended to reduce contractual costs, and therefore, maximise the value of the firm. The difference between the theories is that each one gives different weights to the firm's constituents.

Relying on theories of the firm, it has been hypothesised that there is an association between voluntary financial disclosure and firm characteristics, i.e., size, gearing, profitability, extent of diversification, management's share of capital, number of non-executive directors, company's status, existence of share option schemes, number of substantial shareholdings, and size of the auditing firm. These proposed relationships are the hypotheses that will be tested and reported on in this research.

CHAPTER FOUR

THE UNLISTED SECURITIES MARKET



CHAPTER
FOUR

THE UNLISTED SECURITIES MARKET

4.1 INTRODUCTION

In financing their operations, companies rely upon many sources. The three main sources of capital in the UK are internal funds, loan capital, and securities issues. The bulk of new capital funds of U.K. industrial and commercial companies comes from the internal sources and a major part of the rest from bank loans. TABLE 4.1 shows that funds raised by new issues have varied between 1980 and 1988. However, in 1988 they accounted for 8 per cent of the total funds raised by companies.

TABLE 4.1

Sources of Finance for U.K. Companies (1980-1988)

Year	Internal Funds	UK Capital Issues	Bank Borrowing	Other	Total
1980	64	5	22	9	100
1981	65	5	18	12	100
1982	63	3	23	11	100
1983	78	6	5	11	100
1984	74	3	19	4	100
1985	70	9	17	4	100
1986	59	11	20	10	100
1987	53	17	20	10	100
1988	51	8	40	1	100

Source: Financial Statistics, HMSO, various issues.

The above figures, however, do not show separately funds raised from new issues outside the U.K. However, even given this small contribution, the new issues market is still important and it occupies a large proportion of daily business and financial press comments, especially for small businesses.

The problem of finance for small companies is more acute than for large companies. While large companies and multinationals have easier access to other sources of funds, e.g. bank loans, small companies tend to need more equity capital appearing in their balance sheet as a signal of the owners' commitment to the company. Owners' investment in the company shows their seriousness and their willingness to bear part of the risk in the company which will, in turn, help the company to get access to other sources of capital. Also, small companies, usually expanding companies, are assumed to be more risky than large established ones (Popoff and Cowan, 1985). Therefore, share issues are a primary source of funding for them.

Suppliers of funds, and mainly the financial institutions, have their own reasons for not investing in small companies. An important one is that it is not economic for them to slice their funds into the relatively small sums required, especially with the high cost of assessing risk (Hoare Govett, 1988).

The problem of realising investments in the small companies is also an inhibiting factor for financial institutions and specialist funds who might invest in small

companies. An investor in such businesses may lock him/herself in, especially where there is a thin market for the shares in the companies.

As a result of the above difficulties, small companies are forced to rely upon their own resources and their owners-managers. Where these resources are limited, it has been difficult for such firms to grow and expand.

This problem has been a subject of concern in U.K. for a long time. The last major attempt by the government to study the problem was the setting up of the Wilson Committee in 1979. The Committee recognised that small companies are at a considerable disadvantage in financial markets (Wilson Committee, 1979). The Committee recommended tax relief for investors in **Small Firm Investment Companies** and a guarantee scheme for loans to such companies. At the time, the Committee observed that there had been very few small firms seeking a quotation around the minimum size qualifying for listing. It was thought that the high cost of listing was a contributing factor.

4.2 THE UNLISTED SECURITIES MARKET

In its report, the Wilson Committee suggested that the Department of Trade with other parties should consider how best to promote the facilities of dealing in unlisted securities under rules 163(2) and 163(3). These transactions were an element in the Over-The-Counter (OTC) market.

The recommendations of the Committee were the basis of a consultative document published by the Stock Exchange

(Stock Exchange, 1979), and that was to lead to the establishment of the Unlisted Securities Market (USM) in 1980. As recommended, the objective of creating this second-tier market was to provide opportunities for quotation for smaller companies for which the costs of entry and regulation in the main market were too high.

When companies decide to list their shares on either the USM or the main market they have to compare the benefits and costs of each listing. For small companies considering flotation and which have the necessary qualifications for the main stock market, an official listing on the USM is likely to be advantageous. Certainly the USM is the UK's secondary market and an eventual move to the "big board" is a legitimate goal for most successful companies. However, several significant limitations should be borne in mind. Limited marketability as a function of size and the amount of free equity, i.e. equity that is available to the public, will remain the same in both markets, USM and the main market. Further, the number of market makers are not likely to increase in the main market over night.

A discouragement to join the USM would be the policy of some institutional funds that limit the extent of their investment on the USM and therefore, would reduce USM shares marketability. To counter this problem, there has been over the past few years a substantial rise in the number of specialised company investors in the form of specialised funds investing in USM companies.

For the case of dynamic small companies which actively want to use the stock market the mechanics of acquisitions

on the USM can be both simpler and less costly than those for the main market. Producing a significant number of listing particulars during a year is not a cost free exercise (Hoare Govett, 1988).

For the more important issue of visibility, there are around 1200 stocks on the main market with a capitalisation of £170m or less, and small USM size companies run a serious risk of simply being lost to view (ICC, 1987). The USM is an excellent smaller company universe and is followed as such by the financial press.

The specific reduction in the burden on companies wishing to join the USM, in comparison with joining the main market, is described below.

Firstly, a company joining the main listing is required to have at least 25 per cent of its equity in the hands of the public. While there is no minimum required for USM companies, the guidelines suggest having at least 10 per cent in the hands of the public or external investors. Another minimum requirement relaxed by the Stock Exchange is that of market capitalisation. For USM companies, no lower limit is specified, however, no company with less than £500,000 has been floated. Fully listed companies in comparison are required to have a £500,000 market capitalisation.

Another requirement for USM companies is to have a trading record of at least three years before joining the market. Companies having a trading record of less than three

years can join the market under certain conditions. However, companies are expected to have audited figures that are not more than nine months old. In contrast, companies seeking a full listing are required to have a trading record for five years before joining the market and have audited figures of not more than six months old.

To reduce entry costs to small companies, the Stock Exchange has established special requirements that would minimise the burden on such companies. Firstly, no entry fee is required to join the USM while joining the main listing involves costs of about £15,000. On the other hand, an annual fee of £1,500 is required for the USM listing compared to fee scales from £500 to £3,500 for fully listed firms. Another type of cost that firms incur when deciding to join the USM is that of preparing accountant's reports. A long-form accountant's report is not required by the USM while this is required in the case of a full listing.

The USM started up with 23 companies admitted in the last few months of 1980. TABLE 4.2 shows the number of entrants to and exits from the USM since 1980 at 30 September 1988 (Hoare Govett, 1988).

TABLE 4.2

Entrants to and Exits from the USM since 1980 and Number Remaining at the 30 June 1987

	Number
ENTRANTS:	
Introduction	87
Placing	501
Offer for sale	89
Total Entrants	677
LESS: OUTS	
Acquired	112
Reorganised	29
Suspended	12
Transferred to full list	124
Total Exits	277
Remaining	400

Source: Hoare Govett (1989).

4.3 CHARACTERISTICS OF USM COMPANIES

The companies floated on the USM are varied in character. Individual company market capitalisation varies enormously with the extremes marked by Stanhope at £1101m and Pertogen at £0.8m (at the end of September 1988) (Hoare Govett, 1989). The average capitalisation per company for 1987/8 was £7.75m whilst free capital, i.e., that proportion not directly held by directors/related interests was 41% per company.

As regards profitability, a few of the companies have suffered losses, and most of these have been oil exploration or property companies. TABLE 4.3 analyses the companies by industry and pre-tax profits one year prior to flotation. 58 per cent of these companies have had profits of between £200,000 and just under £1m. (Peat Marwick, 1986).

TABLE 4.3

Number of USM flotations to 31 March 1985 by pre-tax profits one year prior to flotation and sector (£'000)

	Loss	1-199	200-400	500-999	1,000+	Total
Hire purchase & leasing	-	1	1	1	-	3
Beers, wines & spirits	-	1	1	3	2	7
Building, timber & roads	-	2	3	6	3	14
Chemicals & plastics	1	-	3	2	-	6
Drapery & stores	1	1	6	9	4	21
Electricals	4	10	23	30	6	73
Engineering	-	-	1	-	-	1
Food & groceries	1	1	6	2	3	13
Hotels & catering	-	4	2	1	-	7
Miscellaneous industrials	9	15	20	20	2	66
Insurance	-	-	1	1	2	4
Leisure	-	4	9	2	8	23
Motor & aircraft	-	-	3	3	-	6
Newspapers	-	-	1	1	-	2
Paper, printing & advertising	-	1	14	3	2	20
Property	6	7	5	3	3	24
Textiles	-	-	-	1	-	1
Trusts, finance & land	1	4	3	3	1	12
Investment trusts	-	-	1	1	-	2
Oil & gas	7	4	1	6	3	21
Plantations	1	1	-	-	-	2
Miscellaneous	-	1	1	2	2	6
Total	31	57	105	100	41	334
Per cent	9.28	17.06	31.44	29.94	12.28	100.0

Notes: (1) the data for 30 per cent of the companies related to a period of less (or in some cases more) than one year. (2) The totals include companies for which profits were nil. These amounted to 5.1 per cent of the number of companies. (3) Profits in foreign currencies were converted at exchange rates obtaining after the end of the period.

* Source: Calculated from Peat Marwick McLintock (1987).

The USM provided some 81% growth in share prices in 1986/87 (17% for 1985/86) against around 54% for the All-Share index (21% for 1985/1986) (Hoare Govett, 1989).

However, due to the October 1987 Crash, the rise for the first nine months of 1987/88 was only 17.4% against 8.7% for the All-Share index. Further, the growth in average size in the 12 months up to September 1987 was +114% in contrast with the 82% rise in market price performance as measured by the DataStream Leaders Index (Hoare Govett, 1988).

Originally, the USM was dominated by oil and gas companies. Later on, financial, property, leisure and electrical companies, and especially those in computers, grew in importance. However, in terms of its most recent history, the main feature of the USM has been its increasingly broad profile. Most recently, service companies in the design, consultancy and advertising sectors have been prominent among flotations.

For number of employees, very few of the companies floated have had large numbers of employees; 67 per cent have had less than 200 employees in the U.K.

Lastly, on closer examination one can notice the increasing significance of the international representation on the USM and mainly from the USA. A total of 33 foreign companies from the U.S.A. (17), Ireland (13), Canada (2), and France (1) were listed at the end of September 1988. The attractions of the USM to smaller companies from the USA is obvious: entry procedures are both less onerous and less costly.

4.4 ADVANTAGES OF SECURITIES MARKETS-FOR THE ECONOMY

The implications of securities markets in general and the Unlisted Securities Market in particular on the performance of firms and in turn on the economy as a whole are of major importance. One implication is the allocative efficiency of the stock market. There are three ways in which securities markets (primary or secondary) can influence the use of funds supplied to firms (Peasnell and Ward, 1985). The first is the demand by investors in the secondary market for up-to-date information from companies. New issues for any company are few; but as USM companies are in the expanding stage, and in order to ensure future issues success, firms must comply to investors' demand for information to be listed. Stock Exchange regulations go some considerable way beyond the Companies Act requirements. These disclosures are widely disseminated and will be used by analysts continuously to monitor the performance and financial results of companies which also leads to direct questioning of management concerning their use of the resources available to them.

The second way the markets can influence the use of resources is in the feeding back of information to companies' managements. This starts with the financial analysts who analyse and appraise the shares of companies. In their appraisals and published reports, analysts can substantially influence share prices. Share price movements are one indication of management performance. As a result, companies may react to share price movements, and in particular a sustained fall in the price, by appointing new

management or changing the present management policy.

A third and more important effect of securities markets on the allocative efficiency of resources occurs in cases of take-over. Companies launch take-over bids for different reasons, such as: establishing a foothold in a new market, acquiring a rival company to eliminate competition, or to expand in a growth industry. However, companies justify their bids by suggesting that the bidding company will be able to achieve better utilisation of the assets than the existing management. The take-over, the threat of take-over, and the timing of launching the bid is usually affected to some degree by the state of the stock market.

4.5 ADVANTAGES OF FLOTATIONS-FOR THE COMPANIES

The advantages of flotation for USM companies and their shareholders are considerable. The main attractions are outlined in this section. Firstly, for the existing shareholders, listing of their company´s shares enables them to realise the values of their shares easily which would otherwise be difficult to achieve. A related advantage of the USM to shareholders is the availability of a fair valuation of their shares. The USM has shown that companies with perceived potential for outstanding performance can command premium ratings (ICC,1987).

For companies and their growth ambitions, quotation makes it easier and usually cheaper to raise additional capital. Any possible subscriber to new equity capital would know that he/she can dispose of and realise the value of

shares easily in future times. After quotation, further issues, such as rights issues and fixed interest stocks, can be at a lower cost than the initial flotation. As an illustration of the market's success as an avenue of fund raising for small companies, since 1980, USM companies have raised £1.85bn, comprising £1.12bn at flotation and a further £0.73bn in subsequent rights issues (Hoare Govett, 1988).

Further, the empirical evidence suggests that companies seeking USM flotation are high growth firms (Hall and Hutchinson, 1988). Getting a stock market quotation improves a company's rating which results from the public awareness that companies who get listed adhere to high standards of disclosure and monitoring. The high publicity surrounding the issue tends to give companies a higher profile which should help in attracting new opportunities, e.g., fund expansion by share issues where dividends yields required are substantially below interest rates supported on loan or overdraft finance (Peat Marwick Mclintock, 1985, 1987).

In addition, where a company is looking for expansion through take-over bids, having its shares listed would make such expansion easier and possibly cheaper. Shares may be issued as an alternative or partial means of funding the take-over. The expansion can be made, therefore, without using its cash resources or without new loans and accordingly increasing gearing. During 1986/87 it is estimated that USM companies had made some 322 acquisitions involving £1000m. (Hoare Govett, 1989). However, the estimations for 1987/88 indicates that as much as 350

acquisitions had been made at a total cost of around £845m. Further, most purchases have been with shares accompanied by a formula of deferred payments.

In the case of small single shareholder companies, which many USM companies are, flotation can allow shareholders to relinquish their control. This is desirable where family controlled companies face the problem of finding a succession party. Also, some companies may float their subsidiaries with share schemes as an incentive to their management.

For companies floated on the USM, there is an extra advantage from the cost point of view. It is significantly cheaper with less restrictive regulations. When companies advertise and promote their shares to the public in the national newspapers, the requirements of the USM are less than these for a full listing. Also, the proportion of equity that must be publicly held can be as little as 10 per cent compared with 25 per cent for a full listing. This is an important advantage for companies controlled by few shareholders who do not wish to relinquish too much equity early on and yet know that they can realise more wealth at a later date.

4.6 METHODS OF FLOTATION ON THE USM

There are three different methods for a company to obtain a listing on the USM. The first and cheapest method is an **"introduction"**. According to this method, permission is given to a company to introduce its shares to the market and to start dealing in the shares that are already issued. For

this method to be used, 10 per cent or more of the share capital must be already widely held by members of the public who are unconnected with the directors or major shareholders. This method had been used in 20 per cent of the flotations carried out in the USM (Peat Marwick McLintock, 1988).

The most popular method is, however, a **"placing"**. A placing may be used only where total market capitalisation after the issue will not exceed £15 m. and the total value of the shares placed, which may be wholly or partly newly issued to raise additional capital, does not exceed £3 m. A company can achieve the necessary 10 per cent public holding of shares and permission for them to be traded in the USM by having them placed by an issuing house and immediately after that operation be admitted to the USM. The issuing house, stockbrokers or merchant bank, purchases the shares and sells them to its clients. The regulation requires that at least 25 per cent of the offered shares be placed with dealers (other than the issuing house) so that they may be purchased by the public. Placing accounts for about 65 per cent of flotations.

Lastly, the most expensive method is an offer for sale by **"subscription"**. This method, used by about 15 per cent of companies, is the least popular and involves advertisements in the Financial Press. The necessary public holding of shares for admission to the USM can be achieved by offering them at a fixed price or a minimum tender price through an advertised offer for sale.

TABLE 4.4 shows the costs associated with obtaining listing on the Official List and the USM. The examples are based on a company with market capitalisation of £10 m. at issue price and funds raised of £2.5 m. for the Official Listing and £2 m. for the USM. TABLE 4.4 also indicates that the cost of obtaining an official listing is higher in general and for all forms of quotation than obtaining a USM listing.

TABLE 4.4

Range of costs for obtaining a quotation on the USM and Official List (£'000)

	Introduction	Placing	Offer for sale
1. USM:			
Issuing house/sponsor	25-35	35-50	35-50
Stockbroker	0-10	0-20	0-20
Underwriting	-	-	40
Reporting accountants	5-15	20-40	20-40
Capital duty	-	20	20
Solicitors	10-15	20-30	20-30
Advertising	4	4	20-60
Printing	2-5	15-25	30-30
Receiving bankers	-	2-4	8-12
Public relations	2-5	5-10	0-10
Stock Exchange fee	1.5	1.5	1.5
Average Range	49.5-90.5	122.5-204.5	184.5-313.5
2. Official List:			
Issuing house/sponsor	30-40	50-70	50-70
Stockbroker	0-10	0-25	0-25
Underwriting	-	-	50
Reporting accountants	20-40	20-40	20-40
Capital duty	-	25	25
Solicitors	10-15	20-30	20-30
Advertising	4	30-50	70-100
Printing	2-5	15-25	20-30
Receiving bankers	-	2-4	8-12
Public relations	2-5	5-10	0-10
Stock Exchange fee	4	4	4
Average Range	72-123	171-283	267-396

Source: Peat Marwick Mclintock (1988).

Further, TABLE 4.5 describes the average cost of flotation on the USM for the year 1st July 1987- 30th June 1988. For all types of flotation the larger the amount of money raised the larger the average cost. However, for the offer for sale method the average cost for the minimum money raised (£350,000 for raising up to £5 m) is around the average cost for raising the maximum amount in the case of placing (£344,000 for raising over £4 m).

TABLE 4.5

Average costs of flotation on the USM in the year:
1st July 1987- 30th June 1988

Method of flotation	Money raised	Total market capitalisation	Average Cost
	£000	£000	£000
Introduction	N/A	N/A	234
Placing	0- 1,000		130
	1,001- 2,000		195
	2,001- 3,000		277
	3,001- 4,000		269
	Over 4,001		344
		0- 4,000	129
		4,001- 8,000	187
		8,001-12,000	255
		12,001-16,000	307
		16,001-20,000	294
		Over 20,000	327
Offer for sale	0- 5,000		393
	5,001-10,000		608
	15,001-20,000		850
		0-15,000	331
		15,001-30,000	898
		30,001-45,000	532
		Over 45,001	900

Source: Peat Marwick McLintock (1988).

4.7 SUMMARY

This chapter has addressed, firstly, the general difficulties facing small companies in raising enough funds to carry out their projects and operations. Thereafter, the chapter discussed the motivations behind the creation of the USM market and its operation as expressed in the Wilson Committee report of 1979. Special attention was given to the advantages both to the economy and companies, of a stock exchange quotation and in particular the advantages of a USM listing.

The chapter has, also, outlined some of the USM companies' characteristics. Empirical evidence, for example, suggests that companies seeking USM listing are high growth firms. Finally, a comparison was developed, and in particular for the cost of listing, between listing in the fully Listed and unlisted securities markets.

CHAPTER FIVE

DISCLOSURE REGULATION AND THE UNLISTED SECURITIES MARKET

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DISCLOSURE REGULATION AND THE UNLISTED SECURITIES MARKET

5.1 INTRODUCTION

The Companies Act 1985 lays down minimum statutory requirements for the preparation of company accounts. These requirements are supplemented by:

(a) Statements of Standards Accounting Practice;

(b) The Stock Exchange's Listing requirements.

This chapter reviews the disclosure requirements contained in the above sources of regulation. The discussion covers the requirements published up to 31 May 1986, as this is the cut off date for this research. The Act applies to groups of companies in the same manner as it applies to individual companies. However, throughout the chapter the terms company and group are used interchangeably.

For USM companies, the subject of this research, the disclosure requirements of the Companies Act 1985 apply in full. Also applicable in full are the Statements of Standard Accounting Practice (SSAPs). However, there are special Stock Exchange requirements which apply only to the

USM companies. These requirements differ from the full listing requirements and will be discussed later in this chapter.

5.2 THE COMPANIES ACTS

Before looking in detail at the current disclosure requirements for USM published accounts as specified in the Companies Act 1985, a brief look at the situation before 1985 is warranted, as the current accounting regulatory environment in the U.K. is a result of the continuous historical development in the meaning of accounting, information, and regulation (APPENDIX 1 lists the developments of statutory regulation of accounting disclosure in the U.K.). The Companies Act 1948 was the basis of modern company legislation. It contained several detailed disclosure requirements, but, most importantly, it had the over-riding requirement to show **a true and fair view**. The meaning of **a true and fair view** is of crucial importance. One accounting interpretation of the true and fair view, which is a technical one, is that financial statements are prepared on the basis of generally accepted accounting principles, or, current accounting practice (Popoff and Cowan, 1985). In short, it means whatever the accounting profession currently thinks it means (Taylor and Turley, 1986). Parliament had deliberately decided, following centuries of historical and legal tradition, that the precise definition of what is necessary in order to give a proper impression of the financial results and position of a business is a technical accounting matter and should therefore be left to accountants. Parliament would lay out

guidelines, and would establish certain minimum requirements, but would leave the fine tuning to the accounting profession, either through published recommendations or general practice.

Flint (1982) states that U.K. financial reporting practice has followed a path which makes those qualified by training and experience able to give an independent judgement about the conformity of the published statements with the **general principle** prescribed by the law. The **general principle** Flint refers to is that which gives **a true and fair view.**

5.2.1 Pre 1948

Company law has changed over time and since the introduction of **a true and correct view** in 1844. In 1948 the word **correct** was dropped and replaced by **fair**. The change has made this principle more flexible. Before 1900, Benston (1976) suggests, the social and economic conditions prevailing were **laissez faire**. This philosophy meant that the financial affairs of a business were considered to be its private concern and that disclosure of information was competitively disadvantageous (Benston, 1976). As a result, there was an absence of any regulation in matters concerned with accounting and disclosure until 1900. The exceptions were in sectors of public interest, such as insurance and railway companies, where failure would cause damage to the public at large.

At the beginning of the current century, attention was focused on the efficient allocation of capital. As a result,

the role of information was seen to be to encourage this allocation process. At the same time, the need for information was identified with those of investors looking for the maximum return on their capital. Regulations, consequently, changed to encompass the new social and economic needs.

The 1907 Act required a submission of the balance sheet, without clear format, to the Registrar of Companies. Moreover, in 1929, The Companies Act made it compulsory to prepare and submit a profit and loss account to shareholders. As with the balance sheet, no guidance was provided regarding the format and the contents.

Another reason for the development of company law was the series of scandals and business failures in the first half of the current century (Ross, 1965). He lists the failures at the Royal British Bank in 1856, the collapse of the City of the Glasgow Bank in 1878 and the Royal Mail case in 1921.

5.2.2 Companies Act 1948

The year 1948 is seen as the turning point in disclosure legislation. Disclosure requirements were introduced for the first time. The quality of the financial information was emphasised by requesting an **audited** profit and loss account.

In summary the Act included the following requirements:

1. All companies were required to prepare balance sheets and profit and loss accounts together with a director´s report and an auditor´s report and to present the above documents to the shareholders in the annual general

meeting. Also, where one company had a controlling interest in another, the holding company was to prepare and present group accounts reflecting the group's financial position and profitability.

2. The newly prescribed accounts were extended to include individual items of information in the statements and supporting notes. Schedule Eight of the Act specified minimum disclosure requirements.

5.2.3 Companies Act 1967

The format of disclosure in the 1967 Act did not differ from that of 1948. However, disclosure requirements were extended to include more information as a response to the Jenkins Committee's recommendations (Companies Act 1967). Turnover and its method of computation, interest payable, auditors' fees, and charges in relation to plant and machinery were required to be included in the statement and accompanying notes.

With regard to group accounts, disclosure requirements were extended to include details such as subsidiaries' names and their country of incorporation.

Finally, the directors' report was given more weight by requiring more general information to be included in it. Information on turnover from exports and each major class of business were required. Also, directors' interests in the business, such as business contracts and their shareholdings, were required. Commenting on the rationales of the 1948 and 1967 Acts, Taylor and Turley (1986) argue that one could notice that the earlier Act was concerned

with reporting information that reflects the **stewardship objective** of financial disclosure. This was displayed by requiring disclosure of information such as fixed assets, current assets, and the movements in reserves. However, Taylor and Turley suggest that it is possible to view some of the disclosure requirements of the 1967 Act as being related to the objective of assessing **future performance** and cash flows rather than the objective of stewardship. Interest payable, breakdown of loans between short and long term, and the details of future capital expenditure are examples of future performance and cash flow related information. One could see, from the above events, a trend towards requiring information related to investment decisions.

5.2.4 Companies Act 1976

The 1976 Act introduced changes in the administration of companies' affairs rather than changes in the accounting aspects of companies' regulations. However, some disclosure-related matters were added. For example, an accounting reference date for each company was required. Further, new requirements were introduced in relation to accounting records in that these records must be sufficient to represent the company's activities as well as providing the basis for **true and fair accounts**.

5.2.5 Companies Act 1980

This Act represents the first influence of the European Economic Community (EEC) upon companies' legislation in the UK. The main thrust of the Act, which implemented the EEC Second Directive, was the reclassification of companies into

private and public. One of the provisions of the Act was concerned with payment and maintenance of capital of public companies and with defining distributable profits.

For financial disclosure, the Directive and the Act did not introduce any new changes or new requirements.

5.2.6 Companies Act 1981

The EEC Fourth Directive was enacted with the purpose of regulating and harmonising financial accounting disclosure aspects of companies' affairs. As a result, a new Act was introduced in the UK to reflect the developments that had appeared in the Fourth Directive. This new Act introduced changes in information reporting practices which include the format of published accounts, the principles of accounting, and detailed disclosure requirements.

Firstly, the Act regulated the format of the annual accounting statements and limited the alternatives that companies could choose from. However, the practical impact of this change was generally minimal, as most companies were following a similar pattern or format at the time when they enjoyed the flexibility of the previous laws.

With regard to the basic principles of accounting and reporting, the Act incorporated the already accepted and recommended (by the profession) accounting principles in the statute book. Also, the **true and fair view** was stated as an overriding requirement and could be used to justify departure from other requirements in exceptional circumstances.

The third impact was related to the disclosure requirements. On the one hand it modified the disclosure requirements for small and medium sized companies by reducing their public disclosure burden, i.e. filing with the Registrar of Companies. However, disclosure to shareholders was kept the same for all companies. On the other hand, financial disclosure was extended through requiring companies to report cost of sales in the profit and loss account and extended in the directors' report by including a review of the business and a statement on future prospects.

5.2.7 Companies Act 1985

Current financial reporting practice in UK is governed by the Companies Act 1985. After decades of development and expansion of the legal requirements in UK, the government and those involved in interpreting and applying company law felt the need to combine the previous 1948, 1967 and 1981 Companies Acts together. As stated by the government (Taylor and Turley, 1986) the objective of the consolidation of the previous Acts was to provide a thorough reorganisation which would allow shareholders to more readily identify and more easily understand their rights, and assist companies to more efficiently and effectively discharge their legal responsibilities and obligations. From this reasoning, one could deduce that the objective of financial reporting is to satisfy the stewardship objective. This, however, is contrary to the general perception that the trend in disclosure requirements has moved from fulfilling a stewardship objective to satisfying the needs of investors for information regarding future prospects and cash flows.

Part VII of the Companies Act 1985 outlines the accounting and disclosure legal requirements that are applicable to USM companies. In this part, no significant changes from the previous Acts were introduced. Rather, detailed disclosure requirements in relation to the format and contents of the accounts, the notes to accounts, and the directors' report are contained in Schedules (Schs) 4 to 10.

The overriding requirement of the Act is to show **a true and fair view** of the state of the company's affairs. This is expressed in Section (Sec) 228:

1. A company's accounts prepared under Sec. 227 shall comply with the requirements of Sch 4 (so far as applicable) with respect to the form and content of the balance sheet and the profit and loss account and any additional information to be provided by way of notes to the accounts.

2. The balance sheet should give a true and fair view of the state of affairs of the company as at the end of the financial year; and the profit and loss account shall give a true and fair view of the profit and loss of the company for the financial year.

3. Sub-Section (2) over-rides:

   (a) the requirements of Sch 4, and

   (b) all other requirements of this Act as to the matters to be included in a company's accounts or in notes to these accounts;

and accordingly the following two Sub-Sections have effect;

4. If the balance sheet or profit and loss account drawn up in accordance with those requirements would not provide sufficient information to comply with Sub-Section (2), any necessary additional information must be provided in that balance sheet or profit and loss account, or in a note to the accounts.

5. If, owing to special circumstances in the case of any company compliance with any such requirement in relation to the balance sheet or profit and loss account would prevent compliance with Sub-Section (2) even if additional information were provided in accordance with Sub-Section (4), the directors shall depart from that requirement in preparing the balance sheet or the profit and loss account (so far as necessary in order to comply with Sub-Section 2).

6. If the directors depart from any such requirements, particulars of the department, the reasons for it, and its effect shall be given in a note to the accounts.

The following section describes in some detail the financial disclosure requirements of the Act which must be complied with by USM companies.

5.2.7.1 The Format

Section 228 contains the requirement for accounts to be prepared in a standard format. However, a choice of formats is permitted: two balance sheet formats and four profit and loss account formats are available to choose from.

Generally, USM companies adopt the format which they are most easily able to comply with, for example, by using the type of format used internally.

Also, corresponding amounts for the previous financial year must be shown for every item in the balance sheet, profit and loss account, and notes to the accounts. This implies using the same format consistently, unless, in the opinion of the directors, there are special reasons for a change, in that case details of the change and the reasons for it must be given in a note to the accounts (Sch 4).

5.2.7.2 Directors´ Report

Section 239 requires that a directors´ report is one of the documents to be included in each company´s annual accounts. The report must disclose the principal activities of the group during the year (Sec 235,2). Sec 235,1,a requires, also, disclosure of a fair view of the development of the business during the year. However, the Act gives no guidance as to what constitutes a fair view. Looking at the sample companies, one would see that the directors´ review is brief with comments concerning only material developments.

In respect of future developments, Sch 6,75,b requires directors to disclose an indication of **likely** future developments in the business of the group. This legal provision does not give any indication that firms should disclose any quantitative forecasts. Moreover, using the term **likely** gives the impression that it is up to the directors to decide on what to report.

One important provision is the requirement to report the differences between the market value and book value of land. This item of information is required to be disclosed as precisely as practicable if, in the opinion of the directors, such information is of significance to the debenture holders (Sch 1,7,2). Market values are considered important to evaluate future cash flows.

Research and development (R&D) activities are required to be indicated in the directors' report (Sch 6,7,c). This requirement does not specify any type of disclosure, quantitative or qualitative, neither does it require disclosing future research plans.

Another area of disclosure with social importance is that related to employees and their conditions. Firstly, any company, where its average number of UK employees exceeds 250 is required to disclose information concerning the employment of disabled persons. Also, the Act requires the disclosure of information about the continued employment and training of persons who become disabled whilst employed by the company. Information on the training, career development and promotion of disabled persons is required.

Secondly, the Act requires the disclosure of information on employee involvement and the number of U.K. employees. This includes describing arrangements in respect of the following: providing employees systematically with information of concern to them as employees; consulting employees on a regular basis; encouraging employee involvement in the company's performance through an employees' share scheme or by some other means.

The Act, as a manifestation of promoting public confidence and accountability of the directors, requires the Directors' report to include information on the directors' interests in the company and on any other relationships that exist between the directors and the firm (Sec. 331). Apart from directors' names and their shareholdings in any group company, directors are required to disclose the transactions that might give rise to conflicts of interest between directors and their companies, i.e. substantial transactions involving assets in which directors are personally interested, loans and all kinds of financial assistance to directors and their **connections**. Sec. 346 lays down the rules on what is meant by **connections**. A connected person is someone who has a close relationship with a director and who might, therefore, be influenced by the director, e.g., a director's spouse, children; and a company in which the director and his connections hold at least 20 per cent of the equity or control at least 20 per cent of the votes.

5.2.7.3 Accounting Principles and Policies

The Companies Act 1985 sets out four fundamental accounting principles which must be applied and followed by USM companies. These principles follow closely the fundamental accounting concepts cited in SSAP2 (discussed elsewhere in this chapter). These concepts must be followed whether or not the accounts are prepared on a historical or current cost basis. The principles are:

a. The company shall be presumed to be carrying on its business as a going concern (Sch 4,10).

b. Accounting policies must be applied consistently from one financial year to the next (Sch 4,11).

c. All items must be determined on a prudent basis (Sch 4,12). The following are examples of applying the prudent concept:

(i) revenue and profits must not be anticipated, but should be recognised by inclusion in the profit and loss account only when realised in the form of cash or of other assets the ultimate realisation of which can be assessed reasonably; and

(ii) all liabilities and losses which have arisen or are likely to arise in respect of the financial year to which the accounts relate or a previous financial year must be taken into account, including those which only become apparent between the balance sheet date and the date on which the balance sheet is signed.

d. All income and charges relating to the financial year covered by the accounts must be taken into account without regard to the date of receipt or payment. This is commonly referred to as the **accruals** concept (Sch 4,13).

The Act, also, sets out the accounting **rules** (Sch 4,16,34). These rules are known as the historical cost accounting rules and the alternative accounting rules. Which-ever set of accounting rules is adopted, the accounting principles set out above remain of general application.

For accounting policies, Sch 4,6 requires that the accounting policies adopted in determining the amount to be

included in respect to all material items shown in the balance sheet and in determining the profit and loss must be stated in a note to the accounts. In particular, the Act requires companies to explain the policies followed in respect to the following items:

a. Foreign currency translation and in particular the method used in the translation of the accounts of foreign enterprises and the treatment accorded to exchange differences should be disclosed (Sch 4,58).
b. Depreciation and diminution in value of assets (Sch 4,36).

As the concern of this research is only in respect of the disclosure aspects of the annual reports of USM companies, the discussion will not be extended to the measurement methods required by the Act, i.e. cost of fixed assets.

The remaining part of this chapter will address in some detail the Act's requirements for disclosure that are related to the other parts of the annual report i.e. the balance sheet, the profit and loss account and the statement of sources and application of funds.

5.2.7.4 The Balance Sheet

Firstly, for each item shown as a fixed asset a company is required to disclose: its cost, its revaluation value, or current cost at the beginning of the year; any revaluations during the year; and any disposals or acquisitions during the year. With regard to depreciation, the Act requires

companies to disclose the amounts of depreciation at the beginning of the year and any changes or adjustments for disposals during the year. Research and development costs are one of the main items in the annual reports that provide an important indicator of future cash flows. The Act requires disclosure of the treatment of the these expenditures and reasons for their capitalisation or realisation as losses.

For investments, the Act requires that, wherever shown, they must be split between listed and other investments (Sch 4,45). This segregation is an important procedure so that investors will be able to judge the fairness of the value of the investments, especially the listed ones. Also, disclosure is required in relation to investments in subsidiaries. However, disclosure of such information is not required if directors consider any investment not material and in companies incorporated outside the UK (Sch 10-12). In cases where the investment exceeds one-fifth of the allotted share capital of the investee company, in addition to disclosing the name and the proportion of nominal value of issued share capital of each class held, it is also required to disclose the aggregate capital, reserves, and results of the investee company in its most recent financial year (Sch 5,16-17).

With regard to provisions for liabilities and charges, the Act requires the disclosure of the amount of funds retained to provide for future liability or loss which is either likely to be incurred, or certain to be incurred but uncertain as to the amount or timing (Sch 4,89). Also,

disclosure of any movements on such provisions is required. However, the criterion for disclosing any item in the main accounts or the notes is the materiality of the item.

Another section of the balance sheet that indicates levels of future cash flows is the one that discloses information on creditors and obligations. Sch 4,48 requires disclosure of all liabilities separately for amounts falling due within one year and after one year. For each item, information is to be disclosed concerning terms of repayment, rates of interest payable, and general indication of security.

In relation to commitments and contingencies, the Act requires the disclosure of detailed information of charges on assets to secure liabilities of other persons and the stating of amounts if practicable (Sch 4,50,1). Moreover, disclosure is required of amount, legal nature and security given for contingent liabilities not provided and not considered remote. Sch 4,50,2 also requires the disclosure of any uncertainties and a prudent estimate of their effect, or a statement that estimation is not practicable.

5.2.7.5 Profit and Loss Account

In general, groups preparing consolidated accounts are required to prepare the group´s profit and loss account, while the parent company´s is recommended to be included in the annual accounts. According to the Act, four alternative formats are permitted for the profit and loss account and in the interests of clear presentation, it is undesirable for immaterial items to be shown (Sch 4,1-3).

Companies are required to present a profit and loss account that must show the profit or loss on ordinary activities before taxation, any amount transferred or proposed to be transferred to or from reserves, and the aggregate amount of dividends paid or proposed (Sch 4,3). The profit and loss account must disclose, according to Schedule 4:

a. profit and loss after taxation but before extraordinary items.
b. the amount of any extraordinary items, and the attributable taxation;
c. profit or loss after extraordinary items, reflecting all profit and losses recognised in the accounts of the year other than material prior year adjustments and unrealised surpluses on the revaluation of fixed assets.

Further information is required to supplement the profit and loss account and must be given either in the profit and loss account or in the notes (Sch 4,3). For each class of business which in the "opinion" of the directors is substantially different from other business carried on there must be a disclosure of:

a. the amount of turnover attributable to that class; and
b. the profit or loss before taxation attributable, in the opinion of the directors, to that class.

According to the Act, management are given a considerable discretion in specifying segments and what to report concerning each segment. In deciding what constitutes

a different class of business or market, the directors must consider the manner in which the company's activities are organised (Sch 4,55). This can be taken to give the directors considerable powers of discretion in interpreting what is meant by **substantially different**. For each geographical market which, in the opinion of the directors, is substantially different, the turnover attributable to that market must be shown (sch 4,55).

The Act, however, gives the directors of companies considerable power to decide whether to disclose the above information. It states that where, in the opinion of the directors, disclosure of the above information on turnover and profit would be seriously prejudicial to the interests of the company, the information need not be disclosed provided the accounts include a statement to that effect (Sch 4,55,5).

In cases where other income represents a substantial part of the total revenue, the Act requires the analysis of this income in detail. Property rental income, investment income, and income from group companies and other sources must be shown separately (Sch 4,53,4-5).

The Act also requires analysis of the charges and expenses. The total of operating lease rental charges as an expense should be disclosed and analysed between amounts payable in respect of hire of plant and machinery and in respect of other operating leases (Sch 4,53,7). Also, interest payable and similar charges are required to be split between those payable to group companies and the rest (Sch 4,53,2).

With respect to the employees and their conditions, companies are required to disclose the average number of persons employed in the financial year in the United Kingdom and abroad (Sch 4,56,1-2).

Related companies and group accounts were given considerable attention in the Act. It is required that group accounts be submitted if a company had subsidiaries at the year end, and is not itself a wholly owned subsidiary of a company incorporated in the UK (Sch 229,1-2). At the same time, a company may be omitted from the group accounts if directors consider inclusion would (Sch 229,3-4):

a. be impracticable;
b. be of no real value, due to immateriality of the sums involved;
c. involve expenses or delay out of proportion to value;
d. be misleading;
e. be harmful to the business of the company or its subsidiaries;
f. be meaningless on grounds of business differences.

Lastly, the Act specifies two sets of accounting rules that companies can adopt in preparing their accounts. Companies will normally continue to adopt the historical cost accounting rules, but are given the option to adopt instead the alternative accounting rules (Sch 4,29-34). The accounts may take, accordingly, one of the three following forms:

a. Historical cost accounts.
b. Historical cost accounts incorporating certain asset

revaluations.

c. Current cost accounts.

The notes to the accounts must, according to Sch 4,33, describe the valuation bases and methods adopted with regard to:

a. fixed assets and depreciation;
b. stocks and work in progress;
c. current asset investments.

The Act, also, requires that where the balance sheet includes any items on a basis other than historical cost, the following information must be given in respect of each such balance sheet item (Sch 4,33):

a. the corresponding historical cost amount and, if relevant, accumulated depreciation; or
b. the difference between the historical amount(s) and the amount(s) included in the balance sheet; and except in the case of listed investments,
c. the years in which the assets were valued and the various values; and
d. in the case of assets valued during the year, the names of the valuers or particulars of their qualifications, and the basis of valuation used.

5.3 STATEMENTS OF STANDARD ACCOUNTING PRACTICE (SSAPs)

Statements of Standard Accounting Practice (SSAPs) are recommended by the Accounting Standards Committee (ASC), and approved by the councils of its governing accountancy

bodies; the Institute of Chartered Accountants in England and Wales (ICAEW), the Institute of Chartered Accountants of Ireland (ICAI), the Institute of Chartered Accountants of Scotland (ICAS), the Chartered Association of Certified Accountants (CACA), the Chartered Institute of Management Accountants (CIMA), and the Chartered Institute of Public Finance and Accountancy (CIPFA). The SSAPs, containing both accounting policy and measurement requirements, have become one of the major sources of authority for accountants, covering the major areas of accounting controversy. The ASC's constitution defines its objectives as follows: "Bearing in mind the intention of the governing bodies to advance accounting standards and to narrow the areas of difference and variety in accounting practice which will wherever possible be definitive-

"a. To keep under review standards of financial accounting and reporting.
b. To publish consultative documents with the object of maintaining and advancing accounting standards.
c. To propose to the Councils of the governing bodies statements of standard accounting practice.
d. To consult as appropriate with representatives of finance, commerce, industry and government and other persons concerned with financial reporting."
(Alexander,1986, p. 162)

The procedure for developing a Statement of Standard Accounting Practice (SSAP) is beyond the scope of this research. However, the ASC has progressively developed a very extensive consultative procedure in an effort to respond to an earlier criticism of lack of adequate consultation. In addition, efforts have been made to achieve an appropriate balance as between the preparers, users and auditors of annual reports, as between members from large and small organisations and as between the various sectors

of the community interested in financial reports (Peasnell, 1982).

As for the enforcement of accounting standards, there is no requirement in company law to comply with SSAPs. In contrast with the USA and Canada, there is a strong tradition in the UK of securing improvements in standards of commercial practice by a system of voluntary self-regulation through the appropriate professional organisations rather than by legislation. However, the general requirement in the Companies Act 1985 is that accounts should present **a true and fair view** and it is likely that the courts in interpreting what constitutes a true and fair view would be strongly influenced by SSAPs as an expression of the common opinion of the professional accounting bodies.

The professional accounting bodies themselves impose the SSAPs upon their members. Each of the institutes has issued an explanatory note to its members which requires them to comply with accounting standards. For example, the ICAEW states that it may enquire into apparent failures by members of the institute to observe accounting standards or to disclose departures therefrom. Since only members of the institutes may become public limited company auditors the requirement of compliance with SSAPs is a significant one.

In addition, the Stock Exchange expects the accounts of listed companies to confirm with SSAPs, and to disclose any significant departures.

The next section reviews in some detail the SSAPs disclosure requirements, arranged according to the subject

they cover, that apply to USM companies (a summary review of the standards is provided in APPENDIX 2)

5.3.1 SSAPs Disclosure Requirements

In general, there is a certain overlap between the Companies Act 1985 and SSAP requirements in relation to disclosure. The disclosure rules of the SSAPs that apply to USM companies, for this purpose, can be divided into two main headings:

a. Provisions common to SSAPs and the Companies Act 1985.
b. Provisions contained only in the SSAPs.

As the previous sections have addressed the requirements of the Companies Act 1985, this part will concentrate on the provisions that are contained only in the SSAPs.

Firstly, in the director's report, particulars of important events which have occurred between the end of the financial year and the date of approval of the accounts must be disclosed (SSAP 17 para 23). The statement requires the disclosure only of non-adjusting events, i.e. conditions which did not exist at the balance sheet date, and have arisen since; normally these events will not affect the accounts for the year but, nevertheless, it may be necessary to refer to them in the notes to the accounts.

Where disclosure covering such events is made in the directors report, SSAP 17 requires disclosure of:

a. the nature of the event;
b. an estimate of its financial effect, or a statement

that such an estimate is impracticable; and

c. taxation implications.

A related standard is SSAP 2 which is concerned with the disclosure of accounting policies. Accounting to this standard, companies must disclose their accounting policies regarding post-balance sheet items such as liabilities and losses (SSAP 2 para 14). For the other accounting policies, the SSAPs follow closely the fundamental accounting concepts outlined in the Companies Act 1985.

In the balance sheet, SSAP 12 requires, for all fixed assets subject to depreciation, the disclosure of:

a. the depreciation method(s) used;
b. the useful lives or the depreciation rates used;
c. the effect, if material, on depreciation in the year of:

    (i) a change in the method of depreciation;
    (ii) a revaluation of fixed assets.

With regard to research and development (R&D) expenditures, SSAP 13 specifies that these costs may be included in a company's balance sheet in special circumstances. The standard sets out the criteria for determining such special circumstances, i.e. costs of locating and exploiting mineral deposits in the extractive industries and market research expenditure can be capitalised until the assertion of the ultimate commercial viability of the project. Another intangible asset that is required to be disclosed under SSAP 22 is purchased

goodwill. The standard calls for disclosing purchased goodwill as a separate item under intangible fixed assets until fully written off. Where there are many acquisitions during the year, the amount of goodwill should be shown separately for each acquisition where material (SSAP 22 para 40).

SSAP 19 is dedicated to investment properties. According to this standard, investment properties should be carried in the balance sheet at open market value, and that carrying value should be noticeably displayed. This means showing investment properties separately in the analysis of fixed assets given in the notes.

An area that is covered entirely by the standards and which was not touched by the Companies Act is leasing. SSAP 21 deals with leases from the point of view of the lessee and the lessor. Firstly, for a finance lease, i.e. at the inception of a lease the present value of the minimum lease payments, including any initial payment, amounts to substantially all (normally 90 per cent or more) of the fair value of the leased asset, the lease should appear in the balance sheet of the lessee as a tangible fixed asset and as an obligation to pay future rentals. Also, it is required, for each major class of leased asset, to disclose:

a. gross amount;
b. accumulated depreciation; and
c. depreciation allocated for the period.

Any other lease that does not satisfy the above criterion is considered as an operating lease.

For financial leases, the following are required to be disclosed:

a. the gross amounts of assets held and the related accumulated depreciation charges;
b. the cost of assets acquired; and
c. the accounting policy adopted.

As for the lessor, SSAP 21 requires companies to disclose the net investment of all types of leases.

With respect to group accounts and subsidiaries, SSAP 14 requires disclosure of the names and the nature of business of the principal subsidiaries. In addition, SSAP 1 describes the accounting requirements in relation to related companies. The standard states that the group's interest in the net assets other than goodwill of the associated company should be disclosed separately. Also, it is required to show the share of goodwill together with the premium paid (or discount) on the acquisition of the interest, and these two items may be aggregated in one figure.

Where an investment in a company is not treated as a related company investment, i.e. holding less than 20 per cent of the nominal value of the allotted share capital of the investee, the name of the investee, description, and proportion of the nominal value of the issued shares of each class held should be disclosed (SSAP 1). In addition, an outline of the nature of the business of the investee is required to be disclosed.

SSAP 9 deals with the disclosure of information in relation to stocks. According to paragraph 12, it states

that where differing bases have been adopted for valuing different types of stocks and work in progress, the amount included in the accounts under each basis should be stated. The standard also requires companies to disclose:

a. the accounting policy, particularly for cost, net realisable value, attributable profits, and foreseeable losses;
b. stocks and work in progress classified in the balance sheet under appropriate headings; and
c. with respect to long-term contracts:
   (i) cost plus attributable profits less foreseeable losses, and
   (ii) progress payments received and receivable.

One area of accounting which has caused some controversy is the treatment of foreign exchange differences. SSAP 20 is the standard that addresses most aspects of foreign exchange whereas there is not one provision in the Companies Act 1985 that is devoted to this matter. The standard requires the disclosure of the net movement on reserves arising from foreign exchange differences. In addition, the net amount of exchange gains or losses on foreign currency borrowing less deposits should be disclosed, identifying separately:

a. the amount offset in reserves; and
b. the net amount charged/credited to the profit and loss account.

Financial commitments and guarantees play a major role in deciding a company's future cash flows. SSAP 18 requires

that for any contingent liability the accounts should disclose:

a. the factors affecting the likelihood of the liability materialising, and
b. if an estimate of the financial effect cannot be made, a statement to that effect.

Likewise, for such contingencies, the estimated financial effect should be described before taxation and any tax implication. However, in the case of contingent gains, they should be disclosed if the realisation of the gain is probable. As with contingent liabilities, information regarding the following are to be disclosed: the estimated amount, the factors affecting the likelihood of the gain materialising, and if an estimation of the financial effect cannot be made, a statement to that effect.

The accounting profession, through the ASC, has recognised that a statement of sources and application of funds would be an advantage to users of the annual reports. Accordingly, SSAP 10 lays down a minimum standard of disclosure for the statement of sources and application of funds. It is required that such a statement should be a part of all audited financial accounts intended to give a true and fair view of a company's financial position. Where a company presents group accounts, the funds statement should be based on the group accounts. Also, in the event of the main accounts being current cost accounts, the statement should be compatible with the current cost accounts.

As recommended by SSAP 10 the following items are required to be disclosed by USM companies:

a. the profit and loss for the year with adjustments for items which did not involve use (provide) funds;
b. dividends paid;
c. acquisitions and disposals of fixed or non-current assets;
d. changes in medium and long term capital structure;
e. changes in working capital;
f. purchases or disposals of subsidiary companies.

Lastly, accounting for the problem of fluctuating price levels has been the principal subject of debate amongst accountants, regulators, and users of the accounts for some years. SSAP 16, issued in March 1980, emerged from a series of proposals to tackle the problem of accounting in times of inflation. However, since 1985 the mandatory status of SSAP 16 has been suspended and the standard was finally withdrawn in 1988.

5.4 THE STOCK EXCHANGE REQUIREMENTS

The third source that promulgates information disclosure is the Stock Exchange. The Stock Exchange's Listing Agreement contains a number of requirements for the disclosure of information in the annual report and accounts of listed companies, some of which are also required by law or by the SSAPs. The listing agreement requirements of The Stock Exchange Unlisted Securities Market (The USM General Undertaking or **The Green Book**, see APPENDIX 3 for the text) are very similar to those of the main market. This section

will address the requirements of The Green Book which are not required by the SSAPs or the Companies Act 1985.

5.4.1 Directors' Report

According to The Green Book the directors' report of USM companies should include an explanation in the event that the trading results shown by the accounts differ materially from any published forecast made by the company.

Another requirement for listed companies is to disclose the unexpired period of any service contract of any director proposed for re-election at the forthcoming annual general meeting. This requirement does not apply to USM companies; this is one of the few requirements that USM companies are not obliged to comply with.

Where there are substantial holdings, i.e., 5 per cent or more of any class of capital having full voting rights, a statement should be given of persons holding or beneficially interested in such holdings and of the amounts of the holdings. For USM companies, this requirement applies insofar as it is known to the directors (The Green Book 8:4). In cases of corporate substantial shareholders (where the substantial shareholders are companies), the requirement applies to USM companies as well as those with a full listing. Listed companies are required to give particulars in the annual report and accounts of:

a. any contract of importance between the company, or a subsidiary, and a corporate substantial shareholder; and

b. any contract for the provision of services to the company or a subsidiary by a corporate substantial shareholder.

According to the listing agreement, a contract of importance means one per cent or more of the net assets, total purchases, sales, payments, or receipts. Also, corporate substantial shareholder means any body corporate that controls 30 per cent or more of the voting power, or the composition of the board.

Company status in relation to the Income and Corporate Taxes Act (1970) is required to be disclosed. For USM companies a statement should be made as to whether or not the close company provisions of the Act apply to the holding company and whether there has been any change since the end of the financial year. However, where there is a doubt by the directors about a company's status, the existence of the doubt and basis on which taxation provision have been made is to be noted.

5.4.2 The Balance Sheet

For the information disclosed in the balance sheet and accompanying notes, USM companies are required to disclose additional information in the group accounts in relation to their subsidiaries. The principal country of operations, where revenues are generated and costs incurred, of active material subsidiaries is required to be disclosed in addition to the country of incorporation.

In group accounts, also, information is required on investments in other companies (other than subsidiaries). If

the investment exceeds 20 per cent of the investee's equity capital, the accounts of a USM company (or group) should also show:

a. its principal country of operation,
b. particulars of its issued capital and debt securities, and
c. percentage of each class of debt securities attributable to the company's interest.

With respect to liabilities and obligations, USM companies are required to provide a detailed analysis of bank loans and overdrafts, other borrowings, and the aggregate amounts repayable in:

a. one year or less, or on demand,
b. between one and two years,
c. between two and five years, and
d. five years or more (Section 10:F).

5.4.3 Profit and Loss Account

One major area of information disclosure addressed by the Stock Exchange is segmental reporting. For USM companies, the Stock Exchange requires information concerning a geographical analysis of net turnover and trading profit of those trading operations carried on outside the UK and the Republic of Ireland. However, there are no guidelines concerning the detailed application of this rule (The Green Book 10:C), and accordingly, it is up to the directors to decide on the segments and the application of the requirement.

5.5 SUMMARY

In this chapter, a review of the disclosure requirements by the regulatory bodies in U.K. was provided. The discussions have covered the requirements of the Companies Act 1985, the Accounting Standards, and the London Stock Exchange. The regulations of the first two bodies apply to all public companies, Fully listed and Unlisted. However, the Stock Exchange requirements refer separately to listed companies and there are special rules for the USM companies.

While most of the discussed disclosure regulations are mandatory, some are left to the discretion of management of USM companies. In particular, regulations recommend disclosing segmental information without identifying what to disclose or what constitutes a segment. Further, the disclosure of information concerning research and development is suggested but the scope and the detail of disclosure is left to management's judgement.

The previous chapters have considered the theoretical and empirical literature relevant to the voluntary disclosure of financial information in general and the benefits that companies and managers are likely to attain from voluntary disclosure. From the literature some relevant hypotheses have been derived. Further consideration has been given also to the establishment of the Unlisted Securities Market (USM), its functions, the advantages achieved by companies when they gain a listing on the USM, and how the USM differs from the Main market.

The following part of this research is devoted to the development of a methodology to measure voluntary disclosure

and the implementation of this methodology. In addition, the testing of hypotheses developed earlier is discussed.

CHAPTER SIX

THE VOLUNTARY DISCLOSURE STUDY: DESIGN AND METHODOLOGY

CHAPTER
SIX

THE VOLUNTARY DISCLOSURE STUDY: DESIGN AND METHODOLOGY

6.1 INTRODUCTION

This chapter describes the research design and methodology used to answer the following research questions:

a. To what extent do USM companies disclose information voluntarily in their annual reports?
b. What firm characteristics are related to the voluntary disclosure of information.

Given the theoretical background discussed earlier and the regulations governing the disclosure of information in the U.K. and, in particular, what applies in the Unlisted Securities Market, the aim of this chapter is to operationalise the variables that influence the disclosure of information. Also, an attempt will be made to find ways to measure disclosure and the problems associated with such measurement methods. In particular, this chapter will address three issues in relation to the methodology of the research:

(1) Identifying the hypotheses and selection of variables.
(2) Sample selection, data collection, and period of study.
(3) Measuring voluntary disclosure.

6.2 IDENTIFYING THE HYPOTHESES

Given the information asymmetry that arises between managers, owners, and debt holders and taking into consideration the previously discussed theories of disclosure, cross-sectional variation is expected in the voluntary disclosure practices of the sample companies. This section will define all the hypotheses that are tested in both the null and the alternative forms. The variables that are going to be used as proxies for the hypotheses will also be defined. The symbol **Ho** stands for the null hypothesis and **Ha** for the alternative.

6.2.1 DISCLOSURE HYPOTHESIS

1.The Extent of Disclosure:

The first general hypothesis, developed in Chapter Two, is:

1. **Ho: Companies do not voluntarily disclose information in excess of regulation.**

   Ha: Companies disclose information in excess of regulation.

To test this hypothesis, a list of items likely to be disclosed by companies was prepared. The items in the list were included after reviewing the literature and the prior empirical studies. The next section of this chapter lists these disclosure items and the reasons for their inclusion.

6.2.2 EXPLANATORY HYPOTHESES

The second group of hypotheses concerns the relationship between voluntary disclosure and some of companies' characteristics. These characteristics or variables represent the indicators of companies incentives to disclose

financial information.

Before reviewing the hypotheses and the variables used in the analysis, it is necessary to state that all the financial variables used are book-value measures extracted from the published accounts. It is valid to use book values even if it is preferable to use market values, e.g., assets replacement cost for size. This argument is based on the assumption and the empirical evidence that on a cross-sectional basis, book values seem to bear a very high correlation with market-based values (Williamson, 1981 and Palepu, 1986). Therefore, one could use, for example, the book value of assets in the analysis instead of the current value, the preferable measure for size, without altering the validity of the tests. In addition, the use of this procedure becomes more desirable where it is difficult to calculate market-based values, e.g., current cost for assets.

2. GEARING

2. Ho: There is no association between gearing and voluntary disclosure.

Ha: There is a positive association between gearing and voluntary disclosure.

Gearing represents how much a company is relying on borrowing, as against equity, in financing its operations. Two ratios are used to represent gearing, debt to equity ratio and debt to total asset ratio. All borrowings, which involve the company in a commitment for the payment of interest, long-term and short-term (as classified in the annual reports) is included in the calculations. For the purpose of this research, however, preference capital is

included with equity not debt. As the research is concerned with conflict of interests between shareholders (broadly defined) and debtholders, and because debt to equity ratio is an indication of the security of creditors and debtholders, preference capital is considered part of this guarantee. However, if dividends are cumulative, preference capital would have the characteristics of a debt and therefore is included with debt.

In addition, all assets, fixed, current, and intangibles, were used to represent total assets.

3. SIZE

The following size hypothesis was developed in Chapter 2 (capital market theories of voluntary disclosure) and Chapter 3 (theories of the firm):

3. Ho: There is no association between firms' size and voluntary disclosure.

Ha: There is a positive association between firms' size and voluntary disclosure.

The literature has suggested a number of different of measures to represent this variable (Chow, 1982; Popoff and Cowan, 1985 and Foster, 1986). This research has used sales turnover (excluding inter-group transfers and value added tax), the most common measure used by the financial press, to represent size as well as number of employees and total assets. For number of employees variable, the annual report's figure, which represents the average number of employees in the U.K. and overseas, was used in the analysis. Another variable used in the analysis was total assets less current liabilities. All asset measures

exclude depreciation and include intangibles in their calculations.

4. PROFITABILITY

4. Ho: There is no association between firms' profitability and voluntary disclosure.

Ha: There is an association between firm's profitability and voluntary disclosure.

Profitability is usually measured by return on assets, return on sales turnover, and growth in profit (Popoff and Cowan, 1985 and Foster, 1986). Return is defined as the profit generated from utilising assets or from sales turnover. Both operating profit (profit before extraordinary items and after interest and tax) and net profit after extraordinary items and taxation are used to represent return. Further, as the outcome of investment decisions is likely to take more than one financial period to materialise, the results of one period are not expected to represent fairly management's efforts. Therefore, growth in profitability would be more appropriate.

For this research, return on sales turnover and growth in earning per share (EPS) for the period under study are employed in the analysis as they both widely applied by the financial press in its assessment of companies performance. Growth (decline) in EPS is the percentage increase (decrease) in EPS over the year under study. Additional measures used are return on assets, return on equity, and return on assets less current liabilities.

5. LINE OF BUSINESS DIVERSIFICATION (LOB)

5. Ho: There is no association between line of business diversification and voluntary disclosure.

Ha: There is an association between line of business diversification and voluntary disclosure.

The Herfindahl index (Berry, 1974) was used to measure the line of business diversification. The greater this index, the more diversified is the business. The formula to calculate this variable is:

$$1/(\Sigma P^2_i)$$

where P_i is the proportion of turnover in segment i. No attempt was made to change managements' classification of what is considered to be a segment. In calculating the index, the figures supplied by the company for the turnover of each segment were included. In some cases, where the companies had revealed only the profit margin for each segment, such figures were used instead of turnover.

6. GEOGRAPHICAL DIVERSIFICATION

6. Ho: There is no association between geographical diversification and voluntary disclosure.

Ha: There is an association between geographical diversity and voluntary disclosure.

The Herfindahl index, similar to the one for line of business diversification, was calculated for this variable in respect of companies disclosing sufficient information concerning their overseas operations. The company's own classification of what is considered a segment was used. In

most of the cases, the companies had used the continental classification for their overseas operations, e.g., North America and Asia, with the Middle East and the EEC as separate segments. Another related measure of diversification and multinationality is the amount of foreign turnover as a percentage of total turnover. The hypothesis representing this variable is the following:

7. **Ho: There is no association between the percentage of foreign turnover and voluntary disclosure.**

   Ha: There is a positive association between the percentage of foreign turnover and voluntary disclosure

7. MANAGERS' SHAREHOLDINGS

8. **Ho: There is no association between managers' share of capital and voluntary disclosure.**

   Ha: There is a negative association between managers' share of capital and voluntary disclosure.

For this hypothesis, the managers' proportion of issued equity capital, exclusive of any non-voting shares and any share options, was used.

8. SUBSTANTIAL SHAREHOLDINGS

9. **Ho: There is no association between the existence of substantial shareholdings, apart from the management's holdings, and voluntary disclosure.**

   Ha: There is a positive association between the number of substantial shareholders and voluntary disclosure.

For the purpose of this research, a substantial shareholding was assumed to be any holding of 5 per cent or more of the equity capital. This excludes managers' holdings

because this is the subject of another hypothesis. The use of 5 per cent is motivated by the provisions of the Companies Act 1985 which requires the names of holders of any interest amounting to 5 per cent or more to be disclosed.

To test this hypothesis, first, the number of substantial shareholders given in the annual accounts is used in the analysis. It was decided not to use the total percentage of substantial shareholdings because it is the existence of such shareholders and their relationship with management that is expected to explain voluntary disclosure. For further analysis, a dummy variable is used and set equal to 1 if there is, at least, one substantial shareholder and 0 otherwise.

9. EXECUTIVE SHARE OPTIONS

10. **Ho: There is no association between the existence of Executive Share Option schemes and voluntary disclosure.**

    Ha: There is a positive association between the existence of Executive Share Option schemes and voluntary disclosure.

A dummy variable is created for each company to represent this feature. The value of this variable is set equal to 1 if there is an executive share option and 0 otherwise.

10. THE AUDITING FIRM

11. **Ho: There is no association between a company's auditing firm and voluntary disclosure.**

    Ha: There is a positive association between a company's auditing firm and voluntary disclosure.

Firstly, a code from 1 to 8 was given to each company in the sample depending on which of the Big Eight firms was the auditing firm. Further, 9 was given for companies with an auditing firm from outside the Big Eight firms. For additional statistical analyses, a dummy variable was created for each company and set equal to 1 for companies with auditing firms from the Big Eight and 0 otherwise.

11. NON-EXECUTIVE DIRECTORS

12. **Ho: There is no association between the existence of non-executive directors on the Board of Directors and voluntary disclosure.**

    Ha: There is a positive association between the presence of non-executive directors on the Board of Directors and voluntary disclosure.

Usually companies disclose the names of their directors and the type of the directorship in the annual reports. The number of non-executive directors was used to denote this variable. A zero was assigned to this variable for companies without any non-executive directors.

12. TAX STATUS

13. **Ho: There is no association between companies tax status' (closed or not) and voluntary disclosure.**

    Ha: There is an association between companies tax status' and voluntary disclosure. Closed companies are expected to disclose less information voluntarily than not-closed companies.

This variable represents the extent of Directors' control over the company from the point of view of the tax authority, the Inland Revenue. Usually companies disclose in the annual reports their opinion of their status though the final say about this matter is for the tax authority.

Companies are assigned a dummy variable of 1 if they have a close company status and zero if not.

13. INDUSTRY SECTOR

14. **Ho: There is no association between companies' industry sector and voluntary disclosure.**

Ha: There is an association between companies' industry sector and voluntary disclosure.

For this variable, each industry was assigned a number or code to represent the industry in the analysis. Companies were classified according to the Peat Marwick McLintock industry classification (Peat Marwick McLintock, 1986). Industry sectors with less than five companies were excluded from the analysis.

6.3 SAMPLE SELECTION, DATA SOURCE AND PERIOD OF STUDY

As stated before, the purpose of this research is to study the voluntary financial reporting practices of companies in the Unlisted Securities Market. Share dealing in the USM began in November 1980. TABLE 6.1 shows the number of companies that joined the USM as well as the total money raised. As the table shows, the number of USM companies has grown considerably. During 1988 the number has increased to 400 companies.

TABLE 6.1

Number of Entrants and Money Raised

Year	Number of Companies	Money Raised (£m) For Shareholders	For Company	Total
1980	23	6.2	4.8	11.0
1981	63	25.3	42.7	68.0
1982	62	37.4	38.8	76.2
1983	88	78.8	106.8	185.6
1984	101	75.6	83.8	159.4
1985	98	89.4	112.0	201.4
1986	94	143.5	149.3	292.8
1987	75	60.3	131.1	191.4
1988	75	89.0	150.0	239.0
Total	667	605.5	819.3	1424.8

Source: Hoare Govett, various issues.

In deciding on the cut off date for the sample selection, a number of criteria were used:

1. Sufficient companies listed at the cut off date to ensure the significance of results.

2. No major changes under discussion at the cut off date concerning disclosure regulation.

Accordingly, and because most companies end their financial year between December and July, the cut off date was set to be between December 1985 and July 1986. The range was necessary because companies end the financial year at different dates and choosing one single cut off date would not yield a sufficient number of companies. Further, the accounts of the cut off period would have captured the effects of the Companies Act 1981.

The research is of a cross-sectional type rather than a time series investigation covering more than one period. With a time series study, and where there is more than one

variable involved, a difficulty arises in explaining the results. Changes in firms behaviour over time can be caused by the changes in the explanatory variables, by the time variable, or by a combination of the two. It is, also, likely that, over time, the number of macro-economic type factors that might have altered firms' disclosure behaviour is beyond reasonable control. The time required to overcome the outlined difficulties is beyond the limited time available for this research and, therefore, a cross sectional study becomes more appropriate.

The next task was to decide on whether to include all the companies or to take a sample from the whole population, which was 350 companies for this research. In scientific research, there are many good reasons and economic advantages in taking a sample rather than studying all of the population. Costs, including time, would be considerably higher in conducting research covering all of the population, when one could derive the same results with a sample representing that population.

Deming (1960) argues that the quality of research is often better with sampling than with a census. Sampling, where the number of cases is large, he adds, possesses the possibility of better testing, more thorough investigation of missing, wrong, or suspicious information, better supervision, and better processing than is possible with complete coverage. Research findings support this opinion. Assael and Keon (1982) claim that more than 90 per cent of the total survey error in one study was from non-sampling sources and only 10 per cent or less was from random

sampling error. Another advantage from sampling is that it provides much quicker results than does a complete study.

The major problem, however, is that any sample may not be representative of the population from which it is drawn. The results would be that any statistic one calculates from the sample would be incorrect as estimates of the population parameter. According to sampling theory, when the sample is drawn properly, some sample items underestimate the parameters and others overestimate them. Variations in the value of these items tend to counteract each other; this counteraction tendency results in a statistic that is generally close to the population parameter. However, for these offsetting effects to occur, it is necessary (1) that there be enough numbers in the sample and (2) they must be drawn in a way to avoid overestimating or underestimating the parameters (Emory, 1985).

Emory suggests that the ultimate test of a sample is its validity, or its representation of the characteristics of the population. He adds that validity depends upon accuracy and precision.

Accuracy is defined as the degree to which bias has been avoided in selecting the sample. Kerlinger (1973) suggests that for a sample to be accurate, there must be no systematic variation. According to him, systematic variation is the variation in measures due to some known or unknown influences that cause the statistic to lean in one direction more than another.

The second criterion of a good sample is precision of estimate. As a result of random fluctuations inherent in the sampling process, a sample statistic may be expected to differ from its parameter. This is referred to as error variance or sampling error (Emory, 1985). It reflects the influences of chance in drawing the sample members or what is left over after all known sources of systematic variance have been accounted for. Precision is measured by the standard error of estimate and the smaller this measurement is the better the sample.

The method used in selecting the sample for this study, where one draws a sample that conforms to certain criteria, is known as **purposive sampling**. This method is used to assure that the sample is representative of the population from which it is drawn. The logic behind this method is to guarantee that certain relevant characteristics describe the dimensions of the population exist (for this project these are the industry sector, nationality, and cut off date).

However, there is a shortcoming with this method of sampling. First, the idea that selection based on some criteria assumes representativeness of others is an argument by analogy. It gives no real assurance that the sample is representative of the variables being studied. For the current research, this method is the appropriate one to avoid certain undesirable influences that will be discussed later. Advocates of purposive sampling argue that while there is some danger of systematic bias, the risks are usually not that great. While random sampling may be theoretically superior, its technical requirements are often

violated (Emory, 1985).

In selecting the sample for this research, the following steps describe the process followed and the final sample composition. As a first step, foreign companies were excluded from the study to avoid any direct influence from other regulatory authorities outside the U.K. Most of the foreign companies were American and Irish. Then a letter was sent to 350 companies asking them to send their annual reports for the financial year ended during the period December 1985 to July 1986. Out of the 350 letters a reply was received from 100 companies. A second letter was sent as a reminder to the non-respondents. As a result a further 70 companies replied and sent their annual reports. Very few (3 companies) responded expressing their unwillingness to participate in the research.

The next step in the selection process was to decide on which companies should be included in the study. Finance and insurance companies were excluded to avoid any influence concerning their special status and because they are subject to additional regulations.

To discover the effect of industry activities on voluntary disclosure, a sufficient number of companies must be included in respect of each industry of interest. Industry categories with less than five companies (the minimum number statistically acceptable) were excluded.

This research follows the Peat Marwick Mclintock industry classification which appears in APPENDIX 4. After excluding the industries with very few representatives the

sample was reduced to 122 companies divided between industries as TABLE 6.2 shows (the full list of the companies included in the study is provided in APPENDIX 5):

TABLE 6.2

Sample Companies by Industry

Code	Industry	No of companies
10	Beers & wines	5
11	Building & timber	11
13	Drapery & stores	15
14	Electricals	41
16	Food & groceries	9
20	Leisure	20
23	Paper & printing	13
31	Oil & gas	8
	Total No	122

The final task in this section is to discuss the methods companies use to release information in general and the appropriateness of the annual reports as the source of data for this research.

Disclosure of information can be made via two main media: private and public communications. Private communication is usually used in the negotiation of loan arrangements from finance houses and for funding particular projects. Finance houses, normally, seek information to evaluate risks associated with the borrowers' projects. In most cases lenders get the information they request because there is no alternative to the borrowers but to comply and present the required information.

Companies also disclose information to some government departments in certain circumstances. For example, acquiring a license for a new drug requires the disclosure of secret

information concerning the product and its safety. Moreover, some products may cause a public hazard and need a license to be produced such as engines.

The third method of private communication is to the companies own financial advisers. Firms need advisers because they cannot handle all of their own financial affairs in-house. Regulations may also require companies to use independent advisers as in the case of joining the Unlisted Securities Market. Companies wishing to be listed in the market are required to have a financial sponsor to help them prepare the proper documents and to arrange the flotation of their shares. During this process the advisers receive information regarding the company and its operations, projections, and any relevant information to help the sponsors and assure them of the viability of the share launch.

For all the above cases of private communication, companies reveal the required information for specific reasons and such revelations are not aimed at the public at large. However, the second method of communicating information is directed to the public which includes: current investors, future investors, the business community, the government, trade unions, and other groups. The disclosure of information to such groups is usually made through the financial press, prospectuses, and the annual reports. The most comprehensive of the channels is the annual report. The following reasons justify the use of the annual reports as an important source of data to measure voluntary disclosure.

1. The financial press is used by companies for publicity and for reporting some events immediately after they have occurred. The frequency of reporting in the financial press is greater than by alternative methods. However, as the research is not looking at the timing of the disclosure and the fact that companies intend to include all of the year's news in the annual report (Choi, 1973), the annual report should be a comprehensive source of information.

2. Prospectuses are used to promote companies' shares prior to listing in a stock market. In particular, the intention is to increase the public awareness of the company and to attract more investors to buy their shares, and hence, would include additional information. Prospectuses, however, do not indicate any regular pattern of disclosure behaviour as they are used only when companies wish to raise funds. Annual reports, on the other hand, are a regular source of disclosure practices.

Accordingly, annual reports were used to measure voluntary disclosure, i.e., to identify the voluntary disclosure items selected, and to extract the independent or explanatory variables. This approach involves first a general reading for all the annual report of the sample companies to gain a general view of the contents. Then, a thorough reading of the reports was performed as well as highlighting the voluntary disclosure items and the relevant independent variables. The items of disclosure were then compared among the reports for the purpose of constructing a

common list of items to represent the information likely to be disclosed voluntarily. During the process of constructing the list of items the relevant literature was also reviewed. Details of the procedure conducted is described in the following section.

6.4 MEASURING VOLUNTARY DISCLOSURE

Quantification is considered to be advantageous to researchers and policy makers. When variables and relationships are expressed in numbers, it becomes easier and simpler in defining and specifying the objectives of the research and the relationships between the relevant variables. Sterling (1970) quotes Lord Kelvin as saying:

> "I often say that when you measure what you are speaking about and express it in numbers, you know something about it, but when you cannot measure it, your knowledge is of a meagre and unsatisfactory kind."
>
> (Sterling, 1970, p71)

Previous studies exploring disclosure, mainly in the USA, have used indices (e.g., Cerf, 1961; Choi, 1973; Buzby, 1975) to measure disclosure. While this method results in the loss of much of the richness of the underlying data it is nevertheless economically justifiable when a study explores a set of hypotheses. The first step in developing a disclosure index requires measurement of the individual disclosure items. Measuring whether an item is disclosed is an on-off or nominally-scaled measure. Developing a numerical weight for each disclosure item reduces all disclosures to a common measurement scale. The next sub-section is devoted to developing measurement criteria. Later

sub-sections will discuss the determination of weights and the items included in the index.

6.4.1 Developing Measurement Criteria

There are four key measurement criteria that have to be considered in designing the disclosure index: relevance of the element of information, the depth of a disclosed item, the clarity of what is disclosed, and the quality of what is disclosed.

As this research is concerned with capital market theories and theories of the firm in explaining voluntary disclosure, both theories have been employed to decide on what items of information to include in the disclosure index. In particular, the information should assist investors in assessing the ability of companies to generate cash flows in the future (Sterling, 1970). Relevance to investors has been determined in empirical research on the basis of some normative model of investor behaviour such as the mean-variance portfolio models. Lev (1974) and Hamada (1972) are the two main studies that have tested empirically the relevance of basic items such as operating leverage, debt leverage and dividend payout in assessing a firm's beta risk. In the absence of sufficient empirical testing, the literature is the only source of support of the relevance of the items in the index to investors' decision models. The effect of each of the items upon investors' decision models will be the subject of a later section.

In addition, the information should assist current shareholders in evaluating management's performance and

examining the extent to which management is fulfilling its stewardship responsibility.

The next criterion in the measurement process is the depth of information revealed about an item. Depth means disclosing the many facets or sub-elements of the item. For example, disclosure of foreign currency translation gains involves not only the amount of the gain but also the assumptions of the actual calculations. In the cases of current cost accounts, it is also important to disclose the assumptions underlying the accounts as well as the effects. Because a single element can be composed of sub-elements, the breadth or fineness of the scale used to separate one disclosure sub-element from another is important. The scale of measurement should capture any meaningful composition and differences between the sub-elements.

The solution to this problem is to assign partial weights to the sub-elements. Each sub-element is considered a new item of information.

The third measurement criterion is the clarity of the disclosed items. Clarity is important in properly communicating technical information to a relatively non-technical audience. The measure of clarity is the likelihood of understanding the information revealed with the minimum of uncertainty.

What is important to this study is that clarity of items of information between the companies observed should not differ greatly. For the purpose of this research no formal evaluation of disclosure clarity will be presented,

primarily because there is no accepted methodology to test for differences in clarity, and therefore, it has been assumed that disclosure clarity is equivalent across firms.

The last important criterion is the quality of the disclosed items. For example, is disclosure of the sales of three lines of business by a firm with sales in five segments (known through reading the chairman's statement) of the same quality as three lines of business disclosure for a company with only three segments?. The difficulty of measuring quality is in setting a rule for ideal disclosure for many of the items in the index. However, there are few cases where quantitative expectations could be developed, and therefore measurement of disclosure quality is not included in the study.

Sterling (1970) summarises the process of measurement in four ordered steps:

1. Conception of a dimension for the disclosure of economic information in annual reports.
2. Definition of the unit and scale of the measurement for the main elements and sub-elements.
3. Agreement to express units numerically.
4. Descriptions and applications of an operation that discovers the number of units in a given object.

6.4.2 Measuring Disclosure

The procedure used to determine to what extent and in what way a firm has voluntarily disclosed information was the examination of the annual reports of the companies for the relevant disclosure items. To do this, a listing of all

relevant disclosures was devised. A common form was used for all companies with an addendum for oil and gas companies because of the nature of their activities. In particular, licenses granted, production levels, and reserves are items of information relevant only to oil and gas companies.

As the research focuses on voluntary disclosure, those items included in the index are determined by referring to other studies and to the level of existing regulation governing disclosure. Prior studies used varied sources in deciding whether to include an item in their index. Cerf (1961) used a variety of sources to design his index, such as: questionnaire responses, interviews, literature surveys, content analysis of security analysts' reports and mainly the recommendations of expert groups. Cerf's index was comprehensive, although he did not include any sub-elements. Anderson (1962) relied extensively on interviews. His index is not a specific listing of items but rather a broad grouping of items.

Singhvi and Desai (1967) used Cerf's index, but, also, they added five additional items. Subsequent researchers, Buzby (1974), Chandra (1974), and Barrett (1976) have relied on previous studies and the literature to construct their indices. However, Choi (1973) only included items if they were logically related to the criteria of determining the safety margin in the case of bonds and the future cash flows of the company. In this study, the criteria used in deciding on the items to be included in the index is based on what prior studies have included and the relevance of items to the investors' decision model which is assumed to involve

the following:

1. reducing the uncertainty concerning the performance of the business,
2. helping in a better estimation of future cash flows,
3. helping in the evaluation of future growth of the business.

APPENDIX 6 lists all the 53 items included in the study. The Information included in the index, classified into six groups, and their relevance are described below. These groups are: future plans and prospects, segmental information, research and development information, foreign operations, assets descriptions, and other information.

1. Future Plans and Prospects:

Information regarding future plans helps to better estimate future cash flows. For example, forecasts are suggested as necessary inputs into users' decision making systems (Peasnell, 1981). Forecasts refers to management's projections of future events relevant to the firm. Also, future plans indicate the direction of operations and assists users in determining future growth areas (ICAS, 1988). The Institute's document, **Making Corporate Reports Valuable,** suggests that management are much more concerned about the future than the past and that they employ this future-oriented information in planning the business. Therefore, such information is likely to be of considerable relevance to investors just as it is to management.

Included in this category is the prospects of industries in which the company is involved and the economy

in general. Particularly included is any discussion of the industry's growth prospects, performance, and any macroeconomic variables. This will help investors to evaluate the managers' perception of the factors affecting the company and to compare this perception with the general perception of the economy and the industry which can be found in the financial press.

Further items included in this group are discussion of basic management strategies, e.g., cost reduction, sales growth, diversification, rationalisation, etc.

2. Segmental Information:

Disclosing information related to business segments helps analysts and investors to better assess the company's risk (Dhaliwal, 1978; Gray, 1978; and Gray, 1984). In a recent study, although it was limited to a small number of investment analysts, Day (1986) found that analysts need segment information as part of the input to their forecasting process. Revealing details of segments would be useful because of its effects in reducing the risk and uncertainty of the business. For this research, the mere act of disclosing information regarding the segments is the important event rather than how well the business is diversified.

For line of business information, while regulation requires the disclosure of profit and turnover, it leaves to the management the responsibility to decide what constitutes a segment. In addition, regulation gives the management discretionary power on whether to disclose segmental information or not.

According to the Companies Act 1985, for each class of business, which in the **opinion** of the directors is substantially different from other business carried on, there must be disclosed: (a) the amount of turnover attributable to that class; and (b) the profit or loss before taxation attributable to that class (Companies Act 1985, Sch 4,55,1). For geographical segments, the Act requires the disclosure of information on the turnover attributable to the market if in the **opinion** of the directors the segment is substantially different. Where the classes of business or markets, in the **opinion** of the directors, do not differ substantially, it is possible to treat the segments as one class or market.

If, according to the Act, in the **opinion** of the directors, disclosure of the above information on turnover and profit would be seriously prejudicial to the interests of the company, the information need not be disclosed (Companies Act 1985, Sch 4,55,5).

Because of the discretionary power given to directors, it is considered that disclosing such information is essentially voluntary, and segmental information is accordingly included in the index.

3. Research and Development Information:

Research activities are carried out by companies in the expectation that such investments will keep the company competitive and will in turn generate future cash flows to the company. Revealing information regarding research and development (R&D) activities provides investors with the

means to estimate future cash flows and the uncertainties associated with realising such revenues (Dukes, 1976 and Vigland, 1981). Information on R&D commitments aids investors to project future cash outflows and also the revenues and expected cash inflows.

Information on R&D includes results of research, general discussion of what the company has been pursuing in its R&D work as well as any special accomplishments.

4.Foreign Operations:

Overseas trading is a major activity of the British economy and most companies have in some way or another some interests in overseas trade. The two forms of involvement in such activities is through import/export or through making an investment overseas.

Two risks attach to the revenues generated from the foreign activities: (a) the currency exchange risk and (b) the risk associated with repatriation of the revenues (Shapiro, 1984). Accordingly, disclosure of information concerning the locations of foreign investments and the gains or losses arising from currency exchange are of enormous usefulness to investors in reducing the uncertainties surrounding foreign operations. Also important is knowing how far the company is exposed to currency fluctuations through investment overseas or exporting. This may be represented to some extent by disclosing separately the gains and losses from transactions and translations.

5. Assets Descriptions:

Revenue is generated through the efficient utilisation of assets. Therefore, any information concerning the assets including major assets, their use, locations, and useful life are of benefit to the users of the accounts. Such information would help to project future cash flows from the utilisation of the assets and to estimate their realisable values (ICAS, 1988).

For example, information on major products and patents would indicate to investors where the revenues come from and what would happen if there were changes in the demand for such products. Capital expenditure, i.e., investments, also, is a crucial issue with implications for future cash flows and uncertainty. Any information concerning projects in progress or future commitments would help in determining the area where the company is concentrating and whether these are growth areas.

In the case of oil companies, information on the licences they hold, which are assets with potential future cash flows, represents a major factor in deciding their value. This item represents how future supplies are secured.

6. Other Information:

Current cost accounting data are assumed to be of importance because they indicate the current value of the business (Fraser and Nobes, 1985; Basu, 1981; and Bublitz, Frecka, and McKeown, 1985). However, CCA information is not required to be disclosed but permitted to be attached to the main accounts.

A critical factor which affects companies revenues is the demand for its products and services and whether such demand is stable. The Company's order book, major customers, target markets, and methods of distribution are examples of demand-related information. This includes competitive position of the firm' products, i.e., market share.

Historical data, although already in the public domain, would be beneficial to investors as they could use such data to instantaneously evaluate the progress of the company as well as inform them of any changes in the management's style. The implication of including such information in the annual report is that investors would use the information to estimate the risk associated with the business and therefore value the shares more accurately.

Finally, production levels and capacity for industrial companies indicate their efficiency in utilising the company's assets. This information helps in evaluating the company's ability to fulfil any unexpected demand to their products and the expected costs associated with such demand.

6.4.3 Relative Weighting of Items

After deciding on the content of the index (APPENDIX 6), the next problem which arises is the weight to be given to each item in the list since not all the items would have the same perceived importance to investors. Buzby (1975) is considered as the first study to address the problem of weighting (other studies are Chandra, 1975; Barrett, 1976; Leslie, 1979; Firth, 1979; McNally et al, 1982; and Firer and Smith, 1986).

Firth (1979), in the U.K., surveyed a group of financial analysts and asked them to weight the information items on a scale of one to five reflecting how important they felt it was for investors that the item appear in company annual reports. His results indicate that financial analysts assigned different weights to the information items in his index. In addition, Firer and Meth (1986), in a study of information disclosure in South Africa, found that investment analysts assigned different weights to the infromation items in their index.

Buzby (1975), in the U.S.A., used two indices with different weightings when he examined the relationship between disclosure and firms attributes. In the first one he assigned equal weight to each item. For the second index, the relative importance of each of the items was estimated by a survey of professional financial analysts. The resulting survey responses and a literature review were used to assign weights to disclosures which were then applied to a sample of companies.

An interesting finding in Buzby's study, however, was that there were no significant differences in the statistical results when using the two indices separately.

Leslie (1979), also in the U.S.A., used two indices in his study, one with equal weighing and the other was weighted according to a survey of a group of financial analysts. His empirical investigation indicates that both indices produced similar statistical results with regard to the relationship between voluntary disclosure represented

by the disclosure index and firms' characteristics.

The similarity of the results of the two methods, i.e., assigning first an equal weighting and then an unequal weighting to the same item, as in the cases of both Buzby (1975) and Leslie (1979), is likely to be due to the fact that as the number of items in an index increases, the relative importance of each item to the entire index is reduced.

In general, however, there are shortcomings to the weighting method using analysts opinions. The first is that the method is based on asking analysts to assign weights in a non-decision situation, which is an unrealistic setting. There is also a natural tendency for analysts to value most what is not currently disclosed to them (Buzby, 1975). This implies that analysts will assign higher weights to an item not currently disclosed than one which is currently disclosed. Buzby supported this argument where he shows that the group of items that were labelled "this is not a true-required item", i.e. currently disclosed, were weighted 3.33 (of 5) and items "not required", i.e. not currently disclosed, were weighted 3.41.

On the other hand, the main criticism of the equal weighting method is the inappropriateness of assigning equal weights in situations where some items are intuitively more important than other items.

For this study, and relying on the above discussion, it has been decided to use equal weighting for the disclosure index. It is argued that the number of items in the index is

large enough so that equal and unequal weighting is likely to produce similar results.

To measure the extent of voluntary disclosure for each company, a rating worksheet, APPENDIX 6, was developed including the items of information discussed earlier.

At this stage, the problem arises as to how to deal with disclosure items which were not relevant for a particular company. To resolve this problem, a verification source must be available to refer to. For this research, scrutinisation of the accounts of the annual report, the Chairman's Statement, and the Directors' Report was considered to be a reasonable verification source.

The next step was to calculate the voluntary disclosure score for each company. To arrive at this score two numbers needed to be computed. One number was the maximum amount of information that could be presented by a given company as defined by the items of information applicable to that company. The second number represented the amount of information appearing in the annual report. These two numbers were used to form the voluntary disclosure score, which is a relative score, by expressing the amount of information disclosed in the annual report as a percentage of the maximum amount that could have been disclosed. The relative measure of voluntary disclosure served as the dependent variable in this research. Having the score in this format, i.e., a ratio format, which is the highest level in the statistical measurement classifications, is an advantage in the analysis stage.

6.5 SUMMARY

This chapter has presented the design and the methodology by which the sample was collected, the hypotheses were identified and operationalised, and voluntary disclosure was measured. Practical problems of sample selection and data selection were addressed. The independent variables which were used to test the hypotheses were chosen. These variables are financial and non-financial measures that were extracted from the annual reports.

CHAPTER SEVEN

CORPORATE ATTRIBUTES

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CORPORATE ATTRIBUTES

7.1 INTRODUCTION

The previous chapters have provided the theoretical background to voluntary disclosure, the regulatory framework, and the characteristics of the Unlisted Securities Market. In the previous chapter, the criteria for the sample selection and the methodology for measuring disclosure were addressed. This chapter, and the following four will describe the corporate attributes and disclosure practices of the sample companies and the statistics used to test the hypotheses of this research together with an analysis of the outcome of the empirical tests. The current chapter will, in particular, discuss the following:

1. The need for descriptive statistics.
2. The financial attributes of the sample companies.

7.2 DESCRIPTIVE ANALYSIS

Before reviewing the characteristics of the sample, the reasons for the descriptive univariate analysis are discussed. Firstly, in any study, attention will often be drawn from the start to one (or more) of the variables, and

finding out for these variables something about the way the values differ from case to case may prove a beneficial first step towards tackling the main objectives of the study. Secondly, the interpretation of the results of more advanced analysis may be assisted by knowledge of the variation present in each variable entering the final analysis.

The starting point in the descriptive analysis is the fact that individual companies exhibit **variation**, that is to say they differ from each other to a greater or lesser extent and these similarities and differences are reflected in the corresponding values of the variables. The basic task of univariate descriptive analysis is to describe the variation in a set of values of one variable. There are two broad aspects of this analysis. The first is concerned with producing an appropriate set of summary statistics, for example, the mean and the variance, which show the main attributes of the data, and which may form a basis for comparisons between two or more samples.

The second aspect concerns uncovering patterns in the way values appear in respect of the sample, and then, generalising from the data set to the whole population. These patterns are used to describe the sample and for noting features of possible interest and raising questions.

7.3 COMPANIES´ ATTRIBUTES

This section is devoted to analysing the financial attributes of the sample companies, namely; size, gearing,

directors' holding, foreign turnover, profitability, diversification. Other non-financial attributes, i.e., tax status, size of the auditing firm, number of substantial shareholders, existence of executive share option schemes, and number of non-executive directors will also be described. The analyses are based on the descriptive statistics of the sample companies (see APPENDIX 7) and on the summary tables provided herewith.

Three groups of statistics will be used in describing and summarising the sample: frequency distribution, central tendency measures, and measures of dispersion (see Shaw and Wheeler, 1985 for a detailed review of the appropriateness and properties of descriptive statistics). Frequency tables are usually used to summarise nominal or ordinal data such as the industry sector and number of the non-executive directors. When large numbers of observations are involved frequency tables are equally important and useful for data measured on both interval and ratio scales such as total assets and debt to equity ratio.

Measures of central tendency or average, however, provide a single number to describe the general magnitude of all cases in a data set. One of the most commonly used measures of central tendency for a set of data is the mean as it reflects the magnitude of every individual value and any data set can only have one mean.

In many circumstances it is important that one can describe the variation of data about their mean. For this purpose the standard deviation of the particular measure is used. For the extent to which the values in a frequency

distribution are concentrated, which is of prime concern, two measures of dispersion, skewness and kurtosis, are employed. While Skewness measures the normality of a data set, kurtosis is the degree of peakedness of a frequency distribution and is related to deviation away from a perfectly symmeritcal curve.

7.3.1 Size

One of the striking characteristics of the sample is its size range. Different financial measures were used to measure size. Turnover is one of the most popular measures used because it represents a company's market transactions. The larger the company's turnover, the greater the influence the company is likely to have and the more it is likely to attract public and investor attention. Annual turnover for the smallest company in the sample is £12,000 and for the largest £195,178,000 . The mean is £18,699,000. TABLE 7.1 below shows the diversity of the sample with regard turnover.

TABLE 7.1

Total Turnover Summary Table

SALES TURNOVER (£)	Frequency	Percent
UP TO 5,000,000	32	26.2
5,000,001 TO 10,000,000	31	25.4
10,000,001 TO 15,000,000	13	10.7
15,000,001 TO 20,000,000	19	15.6
OVER 20,000,000	27	22.1
TOTAL	122	100.0

Mean	18,689,450	Skewness	3.79
Std Dev	27,544,646	Kurtosis	17.89

For the skewness of total turnover, the distribution is positively skewed, i.e., more than 50 percent of the cases have turnover of less than the mean. As the TABLE 7.1 shows, around 80 per cent of the cases have turnover of less than £20,000,000 while the mean is £18,700,000. Further, the distribution has a high peak with a kurtosis value of 17.7. That is, most cases are located within a small range of values, from £1m to £20m, while the sample range is spanned from £12,000 to £195,178,00.

TABLE 7.2

Total Assets Summary Table

TOTAL ASSETS (£)	Frequency	Percent
UP TO 5,000,000	39	32.0
5,000,001 TO 10,000,000	38	31.1
10,000,001 TO 15,000,000	16	13.1
OVER 15,000,000	29	23.8
TOTAL	122	100.0

Mean	12,419,976	Skewness	3.01
Std Dev	15,383,359	Kurtosis	9.97

The other measure of size used here is total assets. Total assets for the smallest firm is £360,349 and for the biggest £91,165,000. This Also indicates the diversity of the sample and was confirmed by other measures, namely, total equity (ranges from a deficit balance of £1,562,809 to £58,805,000) and total assets less current liabilities (ranges from a deficit of £872,906 to a surplus of £63,077,000).

With regard to the distribution of the other measures of size, both total assets and total assets less current liabilities show similar degrees of skewness as total

turnover. For example, around 80 per cent of the cases have total assets values of less than the mean (£12,419,000). However, the two variables have lower kurtosis values than does total turnover though their distributions are asymmetrical.

7.3.2 Gearing

The debt to equity ratio is one of the most popular measures of gearing. For the sample the minimum value for this ratio is 0.03 with companies shouldering debt of up to nine times the book value of their equity. The mean for the debt to equity ratio is 1.576.

TABLE 7.3

Gearing Summary Table

DEBT TO EQUITY RATIO	Frequency	Percent
UP TO 0.50	12	9.8
0.51 TO 1.00	36	29.5
1.01 TO 1.50	29	23.8
1.51 TO 2.00	18	14.8
2.01 TO 2.30	7	5.7
OVER TO 2.30	19	15.6
TOTAL	121	100.0

Mean	1.58	Skewness	2.90
Std Dev	1.37	Kurtosis	12.69

As for the distribution of this measure, it shows a positive skewness (2.9), i.e., 80 per cent of the sample have their ratios between 0.03 and 2. In addition, about 65 per cent of the cases have debt to equity ratios below the mean (1.58). The distribution also has a high peak, i.e., most cases (85 per cent) have debt to equity ratios between 0.03 and 2.30 while the sample's range is spread between 0.03 and 9. However, the skewness and peakedness is less for

the other gearing measure, debt to total assets ratio, than that of the debt to equity ratio. For this variable the mean is 0.53, skewness value is -0.742, and kurtosis equals 1.41.

7.3.3 Directors' Holdings in the Company

This measure represents how much control the directors can exert over a company's affairs directly through voting in the Annual General Meeting (AGM). The higher this percentage is then the less the directors need authorisation from other shareholders to carry out their policies. In the sample, this measure ranges from 0.08 to 83.0 per cent. The maximum is considered very high which would not be observable in the main market companies. The mean for this measure is 37.96 per cent which in itself a high percentage. This attribute is one major distinguishing feature of USM companies as they are allowed to join the market with a lower percentage of their capital in public hands.

TABLE 7.4

Director's Shareholdings Summary Table

DIRECTORS EQUITY (%)	Frequency	Percent
UP TO 15%	23	18.9
15.1% TO 25%	14	11.5
25.1% TO 35%	21	17.2
35.1% TO 45%	14	11.5
45.1% TO 60%	26	21.3
OVER 60%	24	19.7
TOTAL	122	100.0

Mean	37.97	Skewness	.07
Std Dev	22.64	Kurtosis	-.93

The distribution and skewness of this measure, 0.07, indicates that the values are spread in a nearly normal

distribution. Further, kurtosis for this variable is -0.93, i.e., the distribution has a fairly moderate degree of peakedness. That is, the values of this variable are distributed across a wide flat range.

7.3.4 Foreign Turnover

Not all companies supplied information on their foreign operations (the subject of a later section). The mean value of foreign turnover as a percentage of total turnover is 17.951. This indicates that USM companies are active in foreign markets to some considerable extent.

TABLE 7.5

Foreign Turnover Summary Table

TURNOVER PERCENTAGE (%)	Frequency	Percent
NO FOREIGN TURNOVER	37	30.3
NO INFORMATION ON FOREIGN TURNOVER	13	10.7
UP TO 10%	29	23.8
10.1% TO 30%	20	16.4
OVER 30%	23	18.9
TOTAL	122	100.0

Mean	17.95	Skewness	1.79
Std Dev	27.30	Kurtosis	2.41

As for the shape of the distribution of this attribute, the statistics indicate that the values are skewed positively with a cut-of point of around 10%, i.e., about half the sample have between 0 and 10% of their turnover generated from foreign operations. Further, the kurtosis value shows a moderate peakedness in the distribution, i.e. the values are fairly spread across the sample's range.

7.3.5 Profitability

The use of accounting data to describe profitability is in line with empirical evidence that analysts use accounting data in their selection of portfolios. Many measures of profitability were extracted from the annual reports. Growth in earnings per share (EPS) for the year under study ranges from a decline of 6.59 per cent to a positive growth of 5.13 per cent. This is reflected in the profit figures of the year which range from a loss of £5,421,000 to a net profit after tax and extraordinary items of £10,114,000.

TABLE 7.6

Growth In EPS Summary Table

GROWTH IN EPS (%)	Frequency	Percent
UP TO 0.50% DECLINE	18	14.8
0.51% TO 0% DECLINE	30	24.6
0.01% TO 2.50% GROWTH	20	16.4
2.51% TO 5.00% GROWTH	25	20.5
OVER 5.00% GROWTH	25	20.5
NO INFORMATION GIVEN ON EPS GROWTH	4	3.3
TOTAL	122	100.0

Mean	.03	Skewness	-1.82
Std Dev	1.25	Kurtosis	13.25

The distribution of this measure indicates a negative skewness of 1.82 and a kurtosis of 13.25 which reveals a high degree of peakedness. This negative skewness has resulted, as the summary table shows, from the fact that more than half the companies in the sample (around 60 per cent) have a growth rate of more than the mean.

Another popular measure of profitability used by analysts is the rate of return on turnover, i.e., net profit

after tax divided by turnover. For the sample, the mean rate of return is a loss of 3 per cent. However, the range for the sample was between a loss of 400 per cent to a positive return of 40.3 per cent.

TABLE 7.7

Return On Turnover Summary Table

RETURN ON TURNOVER (%)	Frequency	Percent
LOSS OR ZERO RETURN	20	16.4
UP TO 3.50%	19	15.6
3.51% TO 8.50%	29	23.8
8.51% TO 13.0%	27	22.1
OVER 13.0%	27	22.1
TOTAL	122	100.0

Mean	-.03	Skewness	-5.19
Std Dev	.54	Kurtosis	32.13

As in the case of growth in earnings per share variable, return on turnover has, also, a negatively, but more severely, skewed distribution with most of the cases located in the upper end of the scale and above the sample's mean. Further, the kurtosis points to a very peaked distribution with around 60 per cent of the cases have a rate of return concentrated between zero and 13 per cent while the sample's range is between a loss of 400 per cent and a positive return 40 per cent.

7.3.6 Diversification

According to the sample statistics, diversification is widespread among the companies. That is, companies' activities and operations are spread among more than one geographical area and line of business. Management's review and classification that is included in the Directors' Report and in the Notes to the Accounts was used in calculating the

geographical diversification index for each company in the sample. No attempt was made to redefine segments as it was felt that management's opinion is more appropriate than the researcher's own judgement.

TABLE 7.8

Geographical Diversification Summary Table

DIVERSIFICATION INDEX	Frequency	Percent
NO DIVERSIFICATION	38	31.1
NO INFORMATION GIVEN ON DIVERSIFICATION	14	11.5
1.001 TO 1.200	29	23.8
1.201 TO 1.700	20	16.4
OVER 1.700	21	17.2
TOTAL	122	100.0

Mean	1.38	Skewness	2.43
Std Dev	.63	Kurtosis	6.41

For geographical and line of business diversification, the mean is 1.376 and 1.490 respectively. However, the range of the line of business diversification index is much wider, up to 9.995, than that of the geographical one which is 4.340.

TABLE 7.9

Line of Business Diversification Summary Table

DIVERSIFICATION INDEX	Frequency	Percent
NO DIVERSIFICATION	47	38.5
NO INFORMATION GIVEN ON DIVERSIFICATION	34	27.9
1.001 TO 1.400	13	10.7
1.401 TO 1.900	15	12.3
OVER 1.900	13	10.7
TOTAL	122	100.0

Mean	1.49	Skewness	5.18
Std Dev	1.23	Kurtosis	31.07

As for the distribution of the geographical diversification index, about 65 per cent of the cases have values less than the mean (1.38). However, 11 per cent of the cases have no information on their geographical diversification.

With regard to the distribution of line of business diversification index, around 50 per cent of the cases have their values below the sample's mean (1.49). Though, the non-disclosing companies are about 28 per cent as compared to 11 per cent in the case of geographical diversification.

9.3.7 Other Attributes

In addition to the above characteristics, the analysis has revealed, firstly, that 67 per cent (82 companies) of the sample had substantial shareholders (holding more than 5 per cent of their share capital), other than their directors. Of these, 55 companies (45 per cent of the total) had one or two substantial shareholders (TABLE 7.10). Only 4 companies had more than 4 substantial shareholders.

TABLE 7.10

Substantial Shareholdings (More Than 5%)

Value	Frequency	Percent
0	40	32.8
1	28	23.0
2	27	22.1
3	11	9.0
4	12	9.8
5	2	1.6
6	1	.8
8	1	.8
Total	122	100.0

Another item of information available concerning the sample is the type of auditing firm working for the USM companies. Sixty per cent of the companies (74 companies) were audited by one of the Big Eight firms (see TABLE 7.11). Three of the auditing firms, Deloitte Haskins & Sells, Ernst & Whinney, and Peat Marwick McLintock, had audited 40 companies between them (33 per cent of the sample).

TABLE 7.11

The Auditing Firm Summary Table

	Frequency	Percent
PEAT MARWICK McLINTOCK	15	12.3
DELOITTE HASKINS & SELLS	13	10.7
ERNST & WHINNEY	12	9.8
ARTHUR ANDERSEN	9	7.4
TOUCHE ROSS	9	7.4
ARTHUR YOUNG	6	4.9
COOPERS & LYBRAND	5	4.1
PRICE WATERHOUSE	5	4.1
OTHERS	48	39.3
TOTAL	122	100.0

Another feature of the sample is the relative unpopularity of non-executive members of the Board of Directors (TABLE 7.12). Only 37 per cent of the sample (45 companies out of 122) had non-executive directors on their Boards for the period under study. Out of the 45 companies, 35 companies had only one or two non-executive directors.

TABLE 7.12

Number of Non-Executive Directors Summary Table

NO	Frequency	Percent
0	77	63.1
1	25	20.5
2	10	8.2
3	6	4.9
4	1	.8
5	2	1.6
8	1	.8
TOTAL	122	100.0

Executive share option schemes (ESO), were available to directors from 44 per cent of the companies (54 companies). However, one company did not disclose information on whether the scheme existed or not (see TABLE 7.13).

TABLE 7.13

Existence of Executive Share Option Summary Table

	Frequency	Percent
NO EXECUTIVE SHARE OPTIONS	67	54.9
EXECUTIVE SHARE OPTION	54	44.3
NOT DISCLOSED	1	.8
TOTAL	122	100.0

As indicated in the previous chapter, eight industry sector groups, having at least 5 companies each, were included in the sample. The classification of the companies was according to Peat Marwick's classification. The largest sector was electronics, represented by 41 companies or, 33 per cent of the sample. The next largest sector was the leisure group with 20 companies, or 16 per cent of the sample. The oil and gas sector was represented by only 8 companies, although, at the launching of the USM, this group

was one of the largest. TABLE 7.14 shows the detailed composition of the sample.

TABLE 7.14

Industry Sector Summary Table

	Code	Number of Companies	Percent
BEERS, WINES, SPIRITS	10	5	4.0
BUILDING INDUSTRY	11	11	9.0
DRAPERY AND STORES	13	15	12.3
ELECTRICALS	14	41	33.6
FOOD AND GROCERIES	16	9	7.3
LEISURE	20	20	16.3
PAPER AND PRINTING	23	13	11.0
OIL AND GAS	31	8	6.5
TOTAL		122	100.0

Finally, an important characteristic is whether the companies were considered to be "close" or not from the tax point of view. Sixty per cent of the companies in the sample had the "close company" tax status (TABLE 7.15). Tax status is related to the extent that a company's managers own and control the firm.

TABLE 7.15

Tax Status Summary Table

	Frequency	Percent
NOT A CLOSE COMPANY	43	35.2
CLOSE COMPANY	73	59.8
NOT DISCLOSED	6	4.9
TOTAL	122	100.0

After discussing the financial and general attributes of the sample, the next step is to address the extent of voluntary disclosure in general and for each item in the

disclosure index. This is the subject of the next chapter.

7.6 SUMMARY

This chapter has reviewed the descriptive statistics that reflect the financial and general attributes of the sample. The USM was established to serve part of the corporate sector that cannot or is unable to join the main market, in particular, small growing companies with difficulties in financing their projects. The statistics indicate that this segment of the corporate sector is diversified with regard to size, gearing, directors' shareholdings, diversification, and profitability. The sample is also diversified with regard to industry sector, tax status, existence of executive share option schemes, number of non-executive directors, auditing firm and number of substantial shareholdings.

Further, for the case of business diversification, both geographically and line of business, the sample is well diversified. For example, foreign turnover figures indicate that USM companies are active to some extent in foreign trade. Line of business diversification is also evident in a considerable number of firms in the sample.

Lastly, the statistics confirm the notion that USM companies are distinguished by the owner-manager attribute. The mean for directors' share in equity is 37.96 per cent, which is high as USM companies are allowed to join the market with a lower proportion of their equity in public hands.

Having discussed the financial and general attributes of the sample, the next step is to address the extent of voluntary disclosure in general, that is, testing the hypothesis of whether voluntary disclosure occurs.

CHAPTER EIGHT

EXTENT OF VOLUNTARY DISCLOSURE

CHAPTER
EIGHT

EXTENT OF VOLUNTARY DISCLOSURE

8.1 INTRODUCTION

This chapter applies the methodology developed earlier to empirically investigate the first research question of the project, i.e., to what extent have USM companies disclosed information voluntarily during the period of the study. Formal measurement of voluntary disclosure, in contrast with informal observation, allows determination of the extent of disclosure. The importance of formal measurement is furthered as the number of voluntary disclosure items increases as the items can be summarised and reduced to one score which can then be used in formal statistical testing. Further, when the number of firms disclosing information voluntarily increases, the summary score can be used in empirically comparing the disclosure practices of a group of firms and examining the likely explanations for any differences in companies disclosure practices. In this research, formal measurement is useful in investigating the economic incentives of voluntary disclosure by way of applying advanced statistical techniques.

8.2 VOLUNTARY DISCLOSURE IN GENERAL

To examine the hypothesis that USM companies disclose information voluntarily a confidence test was performed. The test investigates whether the mean of voluntary disclosure scores is greater than zero, or:

HO: Mean = Zero

HN: Mean > Zero

With 99% confidence the results reject the null hypothesis, and therefore support the hypothesis that USM companies disclose information voluntarily.

Voluntary disclosure scores, measured by the actual amount of voluntary disclosure as a percentage of the maximum amount that could have been revealed, range from 0.08 or 8 per cent to 0.535 or 53.5 per cent. Further, the results indicate that, on average, companies voluntarily disclosed 26 per cent of the amount that could have been revealed. As for the shape of the frequency distribution, it is nearly normal (skewness equals 0.60 and Kurtosis equals 0.70)

The question arises as to whether this amount of disclosure is adequate or not. The answer is subjective and depends on users' demand for information. For management, it could argue that **"we disclose information voluntarily up to the level where the marginal cost of disclosing equals the marginal benefit generated from disclosing such information and this is our limit"**. As it will be shown in later sections, this reason has appeared in some companies annual reports to justify not disclosing specific information, e.g., Current Cost Accounting information and segmental

information.

From the users and investors point of view, they could argue that the disclosed amount of information is not adequate, or, in other words: **"what we are interested in is the undisclosed information"**. The basic concepts of economic rationality would lead to the conclusion that the attained level of disclosure is the result of the interaction between the management from one side and the users' pressure from the other.

To explore the extent of disclosure in more detail, the items included in the disclosure index were divided into groups according to their nature. TABLE 8.1 presents summary statistics for each group and APPENDIX 8 shows the extent of disclosure for each item in the disclosure index.

TABLE 8.1

Summary Statistics for the Groups of Disclosure Items

Variable	Mean	Std Dev	No of* Items	No of** Companies
FUTURE PROSPECTS	.28	.17	6	107
EMPLOYEE INFORMATION	.02	.13	2	23
LOB INFORMATION	.21	.21	6	92
GEOGRAPHICAL INFORMATION	.26	.18	6	111
R&D INFORMATION	.19	.29	6	50
FOREIGN CURRENCY	.19	.25	6	30
OIL & GAS INFORMATION	.88	.35	1	7
OTHER INFORMATION	.30	.11	19	81
TOTAL SCORE	.26	.08		122

* Number of items in each group.
** Number of companies disclosing at least one item in each group.

The first group appearing in the table is strategies, future prospects and plans. The mean disclosure for this group was 0.28 which is close to the mean of the total disclosure score. The information included in this group is mostly narrative that helps in assessing future cash flows. However, the results for this group, i.e., disclosing only 28% of what they could have disclosed, are not encouraging and indicates that the companies are reluctant to reveal their strategies. One of the reasons is likely to be that management views disclosure of information on their plans and strategies as being to their disadvantage.

The next group of items concerns the disclosure of information regarding employment and training for companies with less than 250 employees. Information on such activities is required by law for companies with more than 250 employees. For this group, however, the level of disclosure is very low, i.e., with only 2 per cent, on average, of the information revealed.

This low level of employee information disclosure could be because either management has nothing to disclose, which is unlikely, or as a consequence of the prevailing industrial relations in the U.K. during the current decade. It is widely recognised that management's relationship with employees and trade unions has changed during recent year. It could be that companies have become more sensitive to disclosing information with regard their training and employee conditions so to avoid any criticism from the trade unions.

In addition, the low level of employee information disclosure could be due to management's believe that such information is not materially important.

Information on geographical diversification was disclosed at the same level, on average, as the mean of the total score, i.e., 0.26. The mean for the line of business (LOB) disclosure was 0.21 and the maximum value was 50 per cent. That is, information on geographical activity was more forthcoming than LOB information. Some companies disclosed the full amount of expected voluntary information and others disclosed nothing.

The reason for this low level of disclosure, one could argue, is that USM companies do not appear to accept the policy of revealing segmental information. As will be demonstrated in the next section, management views this information as either sensitive or irrelevant to investors.

Two groups of items of information related to research and development and foreign currency have equal means of voluntary disclosure. Each of the means equals 0.19. In other words, on average, companies had disclosed only 19 per cent of what was expected from them. The areas of research and development and foreign currency have, as suggested previously, a profound implication on the assessment of a company's risk and the estimation of future cash flow. One could conclude, after looking at the data, that the prospects for more disclosure of information concerning such issues does not look encouraging.

Oil and gas company disclosures, in addition to what other companies disclose, is related to the licences granted to them and their reserves. It seems that companies in this sector have accepted the premise that such information is useful to investors and there is no disadvantage to them in revealing the information.

The last category is dedicated to information with respect to assets, current cost accounting, historical information, and products and services information. This group has the highest mean amongst other groups with 30 per cent of the expected information released by the sample companies. Moreover, this group has a minimum disclosure value of 0.05, or companies disclosed voluntarily at least 5 per cent of the information they had been expected to disclose while the value for the other categories was zero.

In summary, the indications are that companies do disclose information voluntarily and, on average, 26% of what they could have disclosed. However, the extent of disclosure for the individual items in the disclosure index varies considerably. One of the likely reasons for this variation is the perceived relevance of each item to management. This argument has appeared in more than one annual report.

The next section describes in detail the applicability of each item in the index to the companies in the sample and to what extent the companies have disclosed such items. Examples and extracts from the annual reports are also provided.

8.3 THE EXTENT OF VOLUNTARY DISCLOSURE FOR THE INDEX ITEMS

As the companies in the sample were drawn from different industry sectors, it would be natural to expect companies not to disclose the same items in the disclosure index. This section will analyse in detail each item in the index and the extent of disclosure for these items. Further, extracts from the sample's annual reports is provided. The discussion will be divided according to the original index. The full details of applicability and extent of disclosure for each item are shown in APPENDIX 8.

8.3.1 Future Plans and Prospects

A large majority of the companies, 84.4 per cent or 103 companies out of 122, disclosed information on their future plans prospects, and strategies. This item which represents the management's broad view of the future is of a narrative nature. Although narrative, it is suggested that this information is rated highly by analysts and the financial community (CIMA, 1986).

Strategies which represent the guidelines for future investment and finance decisions have appeared in many of the annual reports. However, statements on strategies were vague in some cases and very clear and definite in others. T&S Stores plc, for example, states that:

> "(Our) philosophy is to keep abreast of current retailing trends."

Another company from the building industry, London and Clydeside Holdings plc, states its strategy clearly and gives some indications of how the company is pursuing the strategy:

> "We have diversified in three minor ways since I (the Chairman) last reported to you. Firstly with a view to improving sales in Aberdeen we opened an Estate Agency since the end the year, trading under the name of Beacon Estates Limited. Secondly, the Mains of Scotstown public house owned by our subsidiary Kevmac opened during the year is beginning to establish its name in the Aberdeen area. Thirdly, a further diversification is now underway whereby we will be extending our range of quality homes on to several small sites where we see the opportunity to carry out small high class developments."

For future prospects, which is partly narrative and partly quantitative, 87.7 per cent of the sample, 107 companies, disclosed information about prospects at least in relation to one of the following: the economy, the industry, or the company. The most recurrent item was information concerning the prospects of the company, 99 companies out of the 107, 92.5 per cent, disclosed this information in their annual reports. Disclosing information in quantitative terms was very unpopular, however, with only 8 companies revealing such information. This might be a result of the management´s unwillingness to commit themselves to a specific target. For example, Ramus plc states the company´s prospects and the effects of currency fluctuations on the company´s their margins:

> "Sales during the September quarter of 1986 are substantially ahead of the same period last year, and I am confident that we can meet the increasing demands of our market place through 1987. As major importers, however, we must be concerned at the present weakness and volatility of sterling which could adversely affect our margins."

Some companies state their prospects and an indication of the changes they have made to suit future developments.

For instance, one company from the electricals industry, DBE plc, states in its annual report that:

> "(the company) is now structured to undertake a substantially higher volume of business. The rate of profit achieved in the last three months of 85/86 is continuing. The results being obtained in the new financial year are bearing the fruit of investments over the past eighteen months."

Other companies, however, refer to the difficulties in predicting future prospects. Cowells plc states that **"it is difficult to make predictions at this stage about the outcome for 1987, but I am pleased to say that all product areas have been very busy since the beginning of the year and the order books are very healthy."**

Further, few companies indicated the prospects of specific products. A property group, Dunton Group plc, disclosed that **"the Group is steadily expanding its property development activities and an increasing contribution to profit may be expected in future years. I (the Chairman) anticipate a maintained contribution from our brick and waste disposal interests."**

Lastly, some companies refer to the competitive conditions that are prevailing in the industry. One brewer, Eldridge plc, claims that **"the grass may be tinged with brown on our side of the hill due to the heat of the competition but it is rarely greener on the other side."** A colourful statement, but is there a competitive-free industry?

8.3.2 Employment Conditions

As indicated earlier, the employment of 250 individuals was used as a demarcation point to distinguish companies who disclose information on disabled employees or pensions plans. The Companies Act 1985 has specified that companies with less than 250 employees are not required to disclose such information. According to the sample, 59 companies, or 48.4 per cent had 250 or less employees. Only one company out of the 59 had disclosed information in relation to disabled employees and pension plans.

One item of information that applies to all companies is that related to training and industrial relations. 23 companies or 18.9 per cent of the sample released information regarding this matter. One may presume, therefore, that this result is not encouraging and especially from the Trade Unions' point of view. For instance, Ramus Holdings plc refers to the industrial relation conditions by stating that **"the group has continued to develop arrangements aimed at providing employees with regular information on matters concerning them as employees. Communications of this information is primarily dependent on newsletters, memoranda and regular management and training meetings."** However, it is not clear what is meant by **"as employees"** and therefore, it is reasonable to question this line of reasoning.

In another example, Fergabrook plc acknowledges the importance of the welfare of its employees and describes the relationship between the directors and the employees. The Report of the Directors states that:

"The Directors fully recognise the importance to the Group of all its employees and attempts to ensure that their views are taken into account when decisions are made which are likely to affect their interests.

Employees are encouraged to make their opinions known to the Directors and senior management and to be aware of the financial and economic performance of their divisions and the Group as a whole."

8.5.3 Line of Business Details

Segmental information with respect to line of business (LOB) is one of the major elements of the disclosure index. 92 companies, or 75.4 per cent of the sample, released some information concerning LOB or gave reasons for not revealing such information. 44 companies gave the reason as inapplicability of such information.

At first glance, one may comment that this is a very high percentage (44 companies) and reveals the openness of companies. However, a question arises: would the companies have disclosed information had they been diversified and operating many lines of businesses? Also, as the regulations have left the decision to the directors to decide on what constitutes a line of business, there is not enough information to judge the propriety of their decisions.

A good example for LOB information is available from Gibbs Mew plc. The company suggests that disclosing such items is a usual reporting practice and provides greater clarity:

"The table in the Directors' Report showing divisional profits has been re-stated to illustrate the results before interest in line with usual reporting practices and to provide greater clarity.:"

	1986 £000	1985 £000	1984 £000	1983 £000
Continuing Business				
Gibbs Mew				
Salisbury Brewery				
Trading activities	629	580	549	559
Houses under management	111	100	58	67
	750	680	652	626
Wm. Seymour				
Soft drinks manf & dist	104	132	141	102
Profits from trading activities	854	812	793	728
Exceptional profits	--	--	315	34
	854	812	1108	762
Discontinued Businesses				
Robert Porter/Campbell Trelawny	—	(414)	(460)	(255)
Profit before Interest	854	371	648	507

Three companies gave their reasons for not disclosing LOB information. The prominent phrase used was **revealing such information would cause damage to the business**. For example, London & Clydeside Holdings plc states that **"turnover and pre-tax profit by activity is not disclosed as the directors consider this would be prejudicial to the interests of the company."** The validity of this reason, however, cannot be objectively determined by outsiders.

Another reason for not disclosing LOB information expressed by Pineapple Group plc is that **"in the opinion of the directors, the Group's activities are all related."** It is difficult, however, to accept this assertion as any business could use this generally applicable reasoning. In addition, the company's annual report indicates that Pineapple plc is engaged at least two separate activities.

As for the disclosing companies, a total of 50 companies, 45 of them (90 per cent) disclosed information on line of business turnover. The next more frequently recurring item appearing in the annual reports of the disclosing companies was profit by line of business. 28 companies provided information regarding their profits by line of business. However, other segmental items concerning assets and capital expenditures were rarely disclosed in the annual reports of the sample companies; only one company disclosed capital expenditure by line of business.

8.3.4 Geographical Information

Geographical disclosure was, to some extent, dominant in the sample. Out of 122, 111 companies (91 per cent) disclosed information or gave reasons for not revealing the information. Inapplicability was the reason in 37 cases, and three other companies had other reasons for not providing geographical disclosure with the main reason being **damaging the competitiveness of the business**. Cowells plc states:

> "in the opinion of the directors, disclosure of the turnover and profit attributable to geographical markets would be seriously prejudicial to the interests of the group."

Another reason expressed for not disclosing trading profits attributable to the various geographical markets is the difficulty in obtaining such information. One company, The Global Group plc, states that **"due to the difficulty of apportioning overheads and expenses an accurate analysis of trading profits attributable to these areas has not been undertaken."** Or, as appeared in the annual report of Asprey plc: **"no geographical breakdown of turnover or contributions**

to profit has been provided as it is not possible to obtain an analysis, given the international nature of the group." From these two examples, if they are the real explanation for not disclosing, it would appear that some companies have not found the appropriate cost allocation method or do not have adequate information systems in place.

For the disclosing firms, the item most disclosed was geographical turnover with 70 companies revealing this item. 15 companies, also, had their profit analysed geographically. However, further information was not forthcoming from the companies. Only two companies disclosed capital expenditure for their geographical segments and a similar number for the geographical distribution of their assets.

For the disclosing companies, the most common classifications in analysing turnover and/or profit had been the continental and the UK/Other classifications. In addition, some companies used a combination of continental and regional classifications. For example, Feedback plc analysed its turnover as follows:

	1986 %	1985 %
U.K.	36.0	37.5
Europe	11.9	18.9
Americas	17.6	24.0
Africa	3.6	4.0
Middle East	20.9	7.3
Far East	10.0	8.3

In another case, A & M Group plc, the company analysed its turnover by both line of business and geographical area.

However, the analysis of profit had been omitted because the directors claimed that **"disclosure of this information will not be in the best interest of the group."**

8.5.5 Research and Development

The sample is composed of companies from different industry sectors with some industries having to incur research and development expenditures to maintain their existence and expand their share in the market. Out of the 122 companies, 50 companies disclosed information on the applicability of R&D to their business or provided detailed information where it was applicable. Ten companies had suggested that R&D was not applicable and therefore no information appeared in their annual reports regarding this matter. The remaining forty companies revealed statements concerning R&D activities, and the most common approach was to disclose narrative information. However, only 24 companies revealed their R&D expenditures. Very few of the sample companies, however, provided information about future R&D commitments.

For example, Telecomputing plc refers to its commitment to R&D and new markets but without giving information on the exact amount of resources directed to the activity: **"as one of the very few British software companies that does invest a high proportion of its turnover in research and development we know that our success in product development must be followed by exploitation of the product in North America."**

Another company disclosed the amount of R&D and how this activity is considered to be vital to the company. Bio-

Isolates plc, a company that is involved in food technology, states that **"the Board considers that research continues to play a vital role in the Group's operations. Investment in research for the year amounted to £29,925 and was charged to profit and loss in the year."**

8.4.6 Foreign Currency

No information was available on how many companies were involved in foreign currency transactions. From the annual reports of the sample, however, 30 companies (24.6 per cent) disclosed the amounts of their foreign currency gains or losses. As to the impact of foreign currency fluctuations on the companies operations, only nineteen companies, 15.6 per cent of the total, disclosed their managements' opinions on the subject. All the comments were narrative without an in-depth analysis. For example, Ramus Holdings plc, wholesale distributors of British and imported ceramic, states: **"as major importers we must be concerned at the present weakness and volatility of sterling which could adversely affect our margins."**

Another company, Laidlaw Thomson Group plc, disclosed the effect of currency fluctuations on their profits by stating that: **"the export markets of 1986 were difficult through a combination of strong and short term difficulties caused by excessive currency fluctuations which eroded the contribution to net profits in the period."**

Finally, 23 companies provided information on the location of their foreign assets with brief descriptions of their operations.

8.3.7 Assets Description

Detailed information on assets could be used to evaluate management's performance and help to determine the extent of the utilisation of the assets. The term **assets** is used for all types of assets such as: fixed assets, properties, investments, capital expenditures, products, services, stocks, and patents.

For fixed assets, there was a variation in the extent of the breakdown of the assets from dividing them into two groups to seven groups such as separating tools from machinery. Sixty seven companies out of the 122 (54.9 per cent) disclosed a very detailed breakdown of their assets. The judgements concerning this item was based on the researcher's experience after reviewing the annual reports and relying on the other information in these reports such as the nature of the business, extent and diversification of operations, and location of the operations.

For example, World of Leather plc gave the following detailed information with regard to its fixed tangible assets:

Long Leasehold Premises
Short Leasehold Premises
Improvements to Leasehold Premises
Fixtures, Fittings, & Equipment
Motor Vehicles
Freehold Industrial Buildings

Some companies disclosed information on their production capacity. For example, Jebsens Drilling plc, an oil and gas company, disclosed information concerning the capacity and rate of utilisation of some of its assets. The annual report states: "the utilisation for all our units

fell from 84% in 1985 to 46% in 1986. At the present time the three semi submersibles are idle off Aberdeen and Falmouth. Additional work for the semi-submersibles could have been obtained during the year only at day rates which would have incurred even greater losses."

Another class of assets is the investments and properties for some companies. Disclosing information on the particulars of such assets, i.e. the investments, their locations, and the operational conditions of the properties, was evident in a large number of the annual reports. 57 companies, or 46.7 per cent, revealed this kind of information. An example of such information is in the annual report of Moss Advertising plc, an advertising company, which discribe a subsidiary's investment and its expected contribution. Their report states that:

> "our creative and design capabilities have been increased by the creation of a new subsidiary, Cieciala and Critchley Creative Services Limited. We have brought together an experienced team and made significant investment in high quality typesetting and design equipment. This investment is not expected to yield short term profits but will contribute significantly to our creative profile in the industry, attract high quality clients and make material contributions to profit in the longer term."

Capital expenditures are usually incurred with the expectation that such payments will contribute to the generation of future revenues. The levels of expenditure, the extent of completion of current projects, any problems in implementing projects, and future plans and expansion in respect of specific projects are examples of the items that concern the investment community. For example, in the

Chairman's Statement, Cowells plc explains that **"the Group continued its policy of prudent effective capital expenditure which should help to produce books and financial reports."**

In the case of current projects, 54 companies provided detailed information on their current capital expenditures. For example, the chairman of Brewmaker plc reported the following:

> "My October statement mentioned the factory we had acquired in Milbrook. Building work has now started, and we are investing approximately £400,000 on purchase, refurbishment and new machinery, to provide us with best manufacturing facility."

38 companies, or 31.1 per cent of the sample, disclosed information regarding their future expenditures. In the Directors' Report, for example, Bio-isolates plc disclosed that **"management expects that cash flow from operations will be broadly neutral during 1987 as inventories are reduced and no further major capital expenditure is anticipated."**

One item that scored highly in terms of disclosure was the description of each company's products and services. Although one would expect that companies publish such information as a means of publicity, it may be that in some situations revealing the details and specifications of the products could help competitors. Also, some products might be of a secretive and sensitive nature which could prohibit disclosure. However, 81 out of the 122 companies (66.4 per cent) disclosed such information.

Lastly, details on stocks, which represent a considerable component of current assets for a large number of companies in the sample, helps in evaluating a company's ability to cover any expected increase in the demand for their products, or in cases of a decline in the demand, the effect of the decline on the company's liquidity and cash flow. Although net realisable value of the stock is a relevant measure for liquidity and cash flow, only 11 companies (9.0 per cent of the sample) provide this information in their annual reports. A probable reason for the low percentage is that net realisable value of stock for the non-disclosing firms does not differ substantially from the book value as the inflation rate has been low and stable during the mid-eighties.

8.3.8 Other Information

Several items were included under this heading. Historical data covering the previous 3-5 years period were disclosed by 58 companies (47.5 per cent). This information is related to companies performance and includes a summary of profits, turnover, earning per share, and total assets. For the non-disclosing firms, a likely reason for not disclosing such information would be companies' assumption that such information is in the public domain and, therefore, there is no need to incur unnecessary costs.

Value added information, however, which represents the company's contribution to the national income, were not revealed at all. It seems that companies do not consider disclosing such information of any value to them. Another unpopular item was the disclosure of any disputes or

difficulties facing the companies. Such disputes could arise with outsiders, i.e. legal disputes, or with the companies' employees. Only one company disclosed that there was a pending case of legal liability.

One subject that is consistently under review in academic circles is current cost accounting (CCA). Many academics have advocated publishing CCA information as a supplement to the conventional historical accounts or disclosing a summary in such accounts. However, the practice represented by the sample under study does not support the academics suggestions. Only 2 companies provided CCA information as a supplement to their historical accounts. A further 5 companies gave specific reasons for not disclosing CCA information. .

Different reasons were stated for not disclosing CCA information. For example, Moss Advertising plc explained that "**the Board considers that the preparation of current cost accounts does not materially improve the information given to shareholders. Accordingly, the expense of preparation and audit of current costs accounts has not been incurred.**" Another company, Norbain Electronics plc, argued that "**the directors have decided that it is not appropriate for the Group to comply with the requirements to publish current cost accounts, as they consider that the costs involved would be disproportionate to the benefits.**" Lastly, Feedback plc, stated that "**these accounts have not been produced in view of the continuing suspension of SSAP 16.**"

For the non-disclosing firms, a likely reason for not disclosing, and assumed by management to be known to the

public, is the low rate of inflation that had prevailed during the period of study, and therefore the irrelevance of CCA information.

Information regarding the demand for the products or services of a company may provide indicators of its market share and help to evaluate future cash flows. Information on companies' order books, which is one indicator of the extent of the demand for a product, were provided by 18.9 per cent or 23 companies of the total sample. For example, DBE Technology Group plc comments that:

> "The order book now stands at some £5.3m, including three production contracts each in excess of £1m. To date, the success with programmes valued over £1m has been in the production area but we are also competing for several large engineering programmes that provide the potential for further growth."

Information on major customers and target markets is another indicator of market share. Such information appeared in the annual reports of 74 companies (60.7 per cent). Some companies, for example, disclosed a detailed list of their major customers.

Finally, information about take-over activities by a company or any take-over approach towards that company would be useful in evaluating the future prospects of the company and represents an indication of the market attitude towards its performance. Although companies are required to disclose information on such activities, the depth of the disclosure and managements analysis of the consequences and implications have varied from one company to another. 34 companies, or 27.9 per cent, revealed information and

detailed reviews of their take-over activities. Shandwick plc, for instance, presented a detailed analysis of the previous year's acquisitions including consideration paid in shares and cash, fair value and method of accounting for each transaction.

However, only 15 companies (12.3 per cent) disclosed the impact of the year's take-overs upon their profitability. For example, John Kent plc disclosed the contribution to turnover and profit before taxation of the acquisition of another company:

	Turnover £000	Profits £000
D C Limited	488	39
The Company and other subsidiaries	16,733	1,063
	17,221	1,102

8.4 SUMMARY

This chapter has tested the first hypothesis that concerns the extent to which voluntary disclosure had occurred for the sample companies. As a result from the formal measurement and testing, this research concludes that USM companies, represented by the sample, disclosed information voluntarily for the period under study by varied amounts and with an average of 26 percent of the amount that could have been disclosed.

Further, an analysis was provided of the extent of voluntary disclosure for each group of items of information in the disclosure index. Examples from the sample's annual reports were also provided. The results of the formal

observation and measurement of voluntary disclosure indicate that USM companies disclose information voluntarily with variations in the levels of disclosure according to the type of information (segmental, plans and prospects, R&D, etc.). On average, 28 percent of the information on future prospects that could have been disclosed were actually disclosed. For research and development and foreign currency information, on average, 19 per cent of the information were revealed.

Employee information, however, is the least popular and appears in only one annual report. In contrast, oil and gas sector companies' voluntary disclosure average was 88 per cent of what could have been revealed.

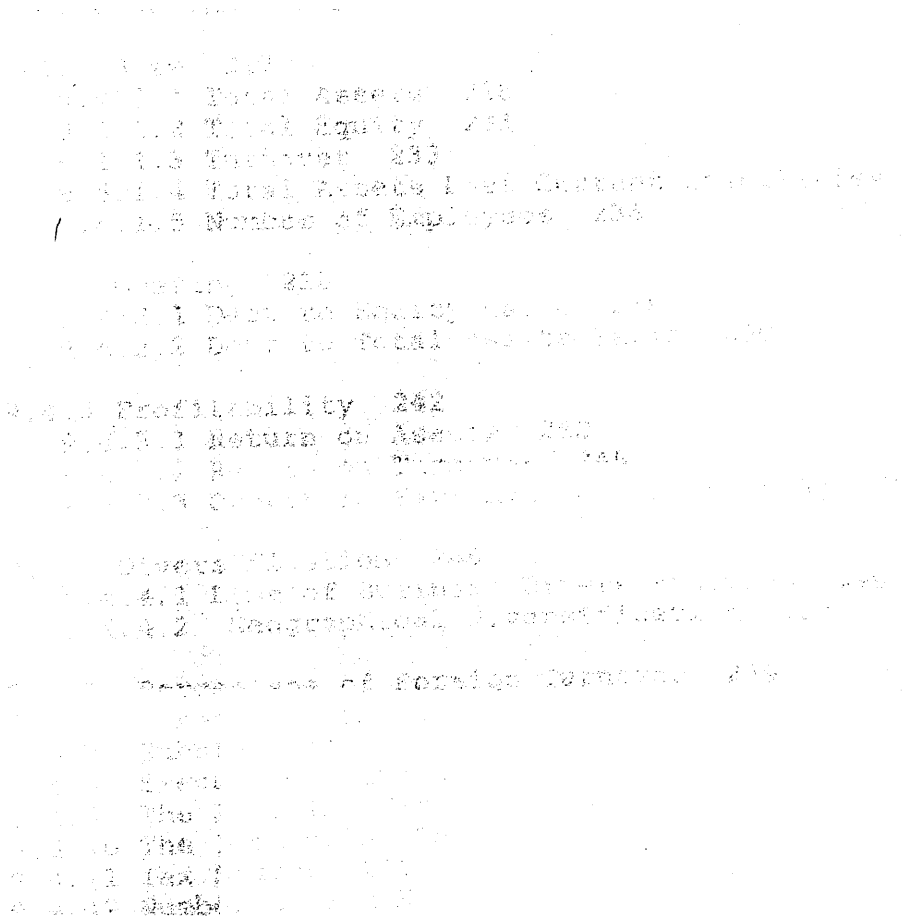
A prominent reason cited by companies for not disclosing some of the information is that the costs involved would be disproportionate compared to the benefits derived. Further, disclosure of segmental information, for some companies, was stated as seriously prejudicial to their interests. Another reason stated was that companies do not consider the information materially improves shareholders' decision making processes.

An interesting reason cited by two companies for not disclosing segmental information is the difficulty of allocating overhead costs to segments. It is not clear whether this is a genuine reason or not. If it is, an accounting problem needs to be solved.

For the non-disclosing firms, one can only speculate the reasons for not disclosing. Cost of disclosure, either

direct monetary cost or indirect in terms of competitive disadvantage could always be a genuine reason for not disclosing. Irrelevance of the information should also be considered to be a possible explanation.

After examining the extent of voluntary disclosure, the proposition of the first hypothesis, the second group of hypotheses, i.e., the factors associated with voluntary disclosure and the incentives for firms to disclose information voluntarily, are examined in the following chapter.



CHAPTER NINE

CORPORATE VOLUNTARY DISCLOSURE BEHAVIOUR: THE NON-PARAMETRIC ANALYSIS

CHAPTER
NINE

CORPORATE VOLUNTARY DISCLOSURE BEHAVIOUR: THE NON-PARAMETRIC ANALYSIS

> "People use statistics as a drunken man uses a lamppost, for support and not illumination."
> (Sandford, 1978, p. xiii)

9.1 INTRODUCTION

The above quotation might be true, but that does not mean that statistics are not useful. Statistics themselves have no meaning until someone interprets them. They can, therefore, be used to support a line of argument as well as being an illuminating tool to explain a particular practice or phenomenon. The intention of this research is to use statistics reasonably, to understand the problem under-investigation, and, at the same time, to keep in mind the limitations of such techniques.

The previous chapter tested the first hypothesis, i.e. to what extent voluntary disclosure had occurred in the period under investigation. As mentioned before, the second part of this research is concerned with the relationship between voluntary disclosure and firms' attributes. This is the subject of the remaining hypotheses. To test these hypotheses, two statistical approaches have been employed, non-parametric and parametric tests. While the next chapter

is concerned with the advanced statistics (parametric), this chapter will be devoted to analysing the results of the nonparametric tests.

9.2 THE APPROPRIATENESS OF NONPARAMETRIC TESTING

Despite the wide application of parametric statistics in accounting and finance, they require certain conditions with regard to the distribution of responses in the population from which the research sample is drawn. The most common condition in this respect is normality of the population distribution and representativeness of the sample. The interpretation of the results of such tests depends upon the validity of these presumptions. Further, using parametric tests assumes that the variables being analysed result from measurement in at least an interval scale.

For their part, nonparametric tests are based on a model that only requires very general conditions with no specific form of the distribution from which the sample was drawn. Certain assumptions are associated with most nonparametric tests, namely, that the observations are independent and that the variables under study have underlying continuity, but these assumptions are weaker than those associated with parametric tests. (Siegel and Castellan, 1988).

Nonparametric tests, however, do have some shortcomings. Siegel and Castellan (1988) suggest an important one. For most nonparametric tests, they report, the data are changed from scores to ranks or even to signs. By doing so, nonparametric methods do not use all of the

information in the sample or that they throw away information.

However, it was decided to use non-parametric statistics in the the current research to examine each hypothesis separately for many reasons. Unlike parametric tests, there are nonparametric tests that may be applied appropriately to data measured in an ordinal scale, and others to data in a nominal scale or categorical data, e.g., tax status and executive share option variables. Moreover, using non-parametric tests is likely to assist in obtaining a primary assessment of the hypothesised relationships. The results and findings of the initial assessment would be used in developing and designing the models used in the following chapter.

In addition, because of the limitations and conditions on using parametric tests, it was felt that it is necessary to examine the hypotheses using non-parametric tests before relaxing some of these conditions and applying the advanced tests. By doing so, it would be possible to compare the results of the two methods and arrive at a conclusion with regard to their usage in similar research projects.

9.3 STATISTICAL TESTS USED

The analyses of this chapter involve using more than one nonparametric test. As the hypotheses to be tested are represented by variables measured by different measurement scales, different tests were employed to suit each scale. Also, when applying more than one test for the same variable, one could see if, by doing so, different

results are obtained. However, applying more than one test for the same variable involves, in most cases, transforming the data from one measurement scale to another, e.g., from interval to ordinal.

Nonparametric methods involve, generally, two types of tests: tests of association and inferential tests (Hickey, 1986). Tests of association refer to the degree of connection between changes in one variable and changes in another variable. In this research, for example, testing the relationship between voluntary disclosure and size using Spearman's Rank Order test is a test of association. The second type of tests, inferential tests, are used when the research is directed toward making comparisons between groups, for example, comparing voluntary disclosure practices of two or more group of companies using the Kruskal-Wallis test, e.g., companies in different industry sectors. However, one could consider the second type of tests also as tests of association, as they investigate the relationship between industry sector and voluntary disclosure.

This section describes in some detail the tests used in the analyses. For the purpose of this research, the tests are arranged into three groups according to type of data. First reviewed are tests that are concerned with discrete variables where the data is represented in contingency tables. The second type of tests used examine differences between groups, i.e., inferential statistics. Lastly outlined is the test of association where both variables are required to be measured in an ordinal scale.

9.3.1 Contingency Tables Based Tests

In this section, data to be tested should be constructed in bivariate (contingency) tables. That is. the frequency of a level of a variable is contingent upon being in a level of another variable. In this research, this could be illustrated by the hypothesis that the amount of voluntary disclosure is contingent upon the size of companies, e.g., small or large.

9.3.1.1 Chi-square Test

The most commonly cited test used in this group is the Chi-square test (X^2). In this research, the test is used to examine the relationship between two categorical variables. This involves arranging the data into contingency tables. For example, in testing the relationship between tax status and voluntary disclosure, one has to, arbitrarily, split the sample companies into two groups: companies with a high level of disclosure and companies with a low level of disclosure. The contingency frequencies table for the two variables would appear as follows:

		Tax Status	
		"Close"	"Not Close"
Disclosure Score	Low	Freq	Freq
	High	Freq	Freq

To discover whether the two variables are independent, the X^2 test statistic can be computed. The test refers to the difference between the expected frequency and the observed frequency in each cell in the table.

A major problem with Chi-square is that if X^2 is rejected, one can conclude that the variables are not independent and that a relationship between them exists. But how much of a relationship exists? What is needed is a method to measure the strength of the relationship between two variables such as Cramer's V.

9.3.1.2 Cramer's V

Cramer's V is a measure of association of a relationship for a contingency table where at least one of the variables is measured on a nominal scale. The V is a type A measure of association (Type A measures extent of the relationship and Type B indicates direction of the relationship) and as such does not indicate the direction (positive or negative) of the relationship (Siegel and Castellan, 1988). Further, this approach helps the researcher to be more careful when reporting a relationship that could have a statistical significance, but so slight as to be of little practical significance (Hickey, 1986).

Another way to conceptualise the concept of association is to think about a relationship between two variables in terms of prediction. If the independent and dependent variables are related, one can use the independent variable to predict the dependent variable. The next section outlines one of these measures used in this project.

9.3.1.3 Lambda

Lambda is a measure of association that has a proportional reduction of error interpretation **(PRE)**, that is, does knowledge from an independent variable improve the ability

to predict a dependent variable? The general formula for **PRE** statistics involves two rules for making predictions. Rule 1 predicts the value of the dependent variable ignoring the independent variable, and rule 2 uses information from the independent variable to predict the value (or category) of the dependent variable.

9.3.1.4 Gamma

In the previous sections, methods for measurement the strength of association between variables with one variable at least measured on a nominal scale were reviewed. In this research, these tests are appropriate for testing some of the hypotheses, e.g., the relationship between voluntary disclosure and tax status. However, in other hypotheses, the relationships involve contingency tables with both variables measured on an ordinal scale.

Gamma, like lambda, is a measure of association that has a proportional reduction of error interpretation. It also takes advantage of the nature of measurement (Siegel and Castellan, 1988) by recognising the sense of rank order that characterises an ordinal measure. The PRE interpretation for Gamma involves the relative reduction in errors in predicting the order of ranks of two cases on the dependent variable using the knowledge of the order of the ranks of the two cases on the independent variable (see Note 1 for the calculation of PRE).

Limitations of Gamma:

Gamma, like all the ordinal measures of association based on cross-tabulated data, has the basic limitation of utilising

only some of the information contained in the variables. It does not consider the magnitude of the differences between the categories. For example, common sense tells us that the differences between very small and large is greater than the difference between very small and small. Gamma, however, merely counts the number of differences and treats them equally. In this sense, gamma throws away information. Further, Gamma measures the association only for pairs that are untied. This has given impetus to the use of alternative measures of association between ordinal variables.

9.3.1.5 Tau_b

Tau_b approaches the problem of ties by directly requiring the number of cases that are tied on both the independent and the dependent variables to be counted and figured in the calculation of the amount of association between the variables. Further, TAU_b has a PRE if the contingency table is square.

9.3.2 Inferential Tests

The idea of association between two variables can be put in a different format: Do small companies disclose as much information as large companies? Or, do companies with executive share options disclose as much information voluntarily as companies without such schemes?

9.3.2.1 The Mann-Whitney Test (M-W)

This statistic is used to test for significant differences between two independent populations (see Note 2 for the statistical definition of independent) when the data are

measured on an ordinal scale. The test is nonparametric because it is concerned with the distribution of measurements rather than a specific parameter such as the population mean or probability. The **M-W** test utilises the ranks of measurements for two groups, e.g., small companies and large companies, drawn from two populations (see Note 3). If the two populations are alike then the two groups should be identical. Firstly, the distribution of ranks between the two groups is examined. If the ranks are equally distributed between the two groups, the null hypothesis of no difference cannot be rejected (Siegel and Castellan, 1988).

This test is one of the most powerful of the nonparametric tests, and it is very useful alternative to the parametric t test.

9.3.8 The Kruskal-Wallis Test (K-W)

The Kruskal-wallis analysis of variance is an extension of the Mann-Whitney test. It is used to decide whether K independent samples are from different or identical populations. Specifically the technique tests the null hypothesis that K samples come from the same population or from identical populations with the same median. If the alternative hypothesis is true, at least two groups will have different medians. The test assumes that the variables under study have the same underlying continuous distribution; thus, it requires at least ordinal measurement of that variable.

The steps followed in calculating K-W statistics is the same as those of Mann-Whitney. However, the ranking is made

to all groups in a single series instead of ranking two groups. Compared with the most powerful parametric test, the F test, the K-W test has a power efficiency of 95.5 per cent, i.e., the F test achieves the same statistical results with 95.5% of the sample size (Siegel and Castellan, 1988).

9.3.9 Spearman's Rank Order Test

Rather than have the variables cross-tabulated as above, and predictability involve the order of pairs of ranks, rank order data involves computing the rank of a case. The rank order for all cases is then presented as an ordered array and comparisons between variables can be made. The question to be answered is: Are the cases ranked in the same manner for the variables. **Spearman's rank order** correlation coefficient, also called **rho(p)**, is a measure of association between ordinal variables that measure the convergence of ranks between the variables for a set of cases. If a case is ranked high on the independent variable can one predict that the case will be ranked high (or low) on the dependent variable.

This test requires that both variables be measured in at least an ordinal scale so that the cases under study may be ranked in two ordered series. As with the other nonparametric methods, this test does not assume any normality in the distribution in the variables tested.

Having described the tests used, the next step is to choose the appropriate statistic to test each hypothesis. In most of the cases more than one test was applied, starting

from the simple to the more powerful.

9.4 TESTS OF THE VOLUNTARY DISCLOSURE HYPOTHESES

The purpose of this section is to present the empirical results of testing the voluntary disclosure hypotheses. The hypotheses developed earlier were tested using the previously outlined statistics. Two computer statistical packages were used in the analyses, **SPSS PC+ V2** and **STATGRAPHICS**. The dependent variable in each test is the disclosure score that was measured and discussed in Chapter 7. The tests will attempt to assess whether the extent of voluntary disclosure is associated with companies' characteristics. To reject any null hypothesis, it was decided that the confidence level for any test statistic should be at least 90 per cent. However, in the analyses, the discussion refers to three levels of confidence 99 per cent, 95 per cent, and 90 per cent so it will be possible to compare the results of the different tests. The resulting detailed statistics for the non-parametric tests appear in APPENDIX 9. However, the following tables provide summaries of the non-parametric statistics for the financial and non-financial variables.

9.4.1 Size

The results of the previous chapter indicate that voluntary disclosure had occurred and that there were no non-disclosure companies. Therefore, it was not possible to divide companies between disclosing and non-disclosing firms. To test the size hypothesis, different measures were used to represent size. Also, more than one statistical test was used to investigate the effect of size on voluntary

disclosure. The following sections describe the variables used and the results of applying the different tests. The order of tests is according to their power starting from the less powerful.

9.4.1.1 Total Assets

To test the relationship between total assets and voluntary disclosure, the sample companies were split arbitrarily into two groups of equal size, 61 companies in each, using the 50th percentile of total assets as a break point. It was decided that the lower group, below the median, represents the small companies and the upper one represents the larger companies. So each company was classified as small or large according to its location. For level of disclosure, the sample was also split arbitrarily into equal size groups, a low disclosure group and a high disclosure group according to the 50th percentile of voluntary disclosure.

The above classification of the sample has resulted in a 2 by 2 contingency table where Chi-Square based tests can be used to test the relationship between total assets and voluntary disclosure. Firstly, the Chi-square tests indicate, as shown in TABLE 9.1, that total assets is associated positively with voluntary disclosure with 99 per cent confidence. Also, Gamma, which is a measure of association, indicates a high, 49 per cent, positive relationship between the variables. However, when using Tau^b, which is an improvement on Gamma, the association is reduced to 26 per cent with 99 per cent confidence.

TABLE 9.1

The Non-Parametric Summary Statistics:
Two Groups Tests-Size

VARIABLE	CHI-SQUARE	GAMMA	TAU B	M-W
Assets	7.3949*	0.4919	0.2626*	-2.7805*
Equity	3.9768**	0.3796	0.1969*	-1.5387***
Turnover	2.6623*	0.3200	0.1641**	-1.7640**
Assets less Current Liabilities	7.3950*	0.4919	0.2626*	-2.3504*
Number of Employees	5.6648*	0.4405	0.2315*	-2.3542*

* 99% Confidence
** 95% Confidence
*** 90% Confidence
M-W: Mann-Whitney Test

Another test performed on the two-group classification, small and large companies, is the Mann-Whitney test. This test shows that the two groups differ from each other with regard to voluntary disclosure and that there is a positive association between voluntary disclosure and total assets with 99 per cent confidence.

To explore the data set further, it was decided to split the sample, with regard to total assets, into three equal size groups instead of two. This was done by using the 33rd and the 66th percentiles of the total assets variable. Therefore the sample companies were classified arbitrarily into three groups small, medium, and large according to size.

TABLE 9.2

The Non-Parametric Summary Statistics:
Three Groups Tests-Size

VARIABLE	CHI-SQUARE	GAMMA	TAU B	K-W
Assets	5.0094	0.2305	0.1552**	6.3526**
Equity	2.7760	0.1813	0.1215**	3.0992***
Turnover	1.6821	0.0657	0.0440	1.7597
Assets less Current Liabilities	2.6143	0.1660	0.1113**	3.2155***
Number of Employees	7.5446**	0.2097	0.1419**	7.3173*

* 99% Confidence
** 95% Confidence
*** 90% Confidence
K-W: Kruskal-Wallis Test

When applying Chi-Square to the three groups analysis, the statistic did not reject the null hypothesis of no relationship between total assets and voluntary disclosure. However, both Gamma and Tau_b indicate a positive relationship. For Tau_b, the result is that if one knows the size of companies, the error in predicting voluntary disclosure can be reduced by 15 per cent with 95 per cent confidence.

Another test used in the analysis is the Kruskal-Wallis test, which is similar to Mann-Whitney but only applies when the comparison is between three or more independent groups. In comparing the three groups, small, medium, and large, the test statistic indicates that total assets is an influencing factor on voluntary disclosure with 95 per cent confidence.

Lastly, Spearman's rank correlation was used to examine the association between total assets and voluntary disclosure. As indicated before, this test is the most powerful non-parametric test for ordinal data because it uses more information in the data set than any another non-parametric test. According to Spearman's test, shown in TABLE 9.3, total assets has a 25 per cent correlation with voluntary disclosure at 99 per cent confidence level.

In summary, the statistics of all the non-parametric tests used to examine the relationship between total assets, representing size, and voluntary disclosure, indicate that total assets has a positive relationship with voluntary disclosure levels of the sample companies.

TABLE 9.3

Spearman's Summary Statistics: Size

Size Variable	Correlation
Assets	0.2524*
Equity	0.1909**
Turnover	0.1086**
Assets less Current Liabilities	0.2148*
Number of Employees	0.2449*

* 99% Confidence
** 95% Confidence
*** 90% Confidence

9.4.1.2 Total Equity

The second variable used in the analysis to represent size is total equity. As with total assets, the sample was first divided arbitrarily into two equal size groups, using the

50th percentile of total equity as a break point, and classifying the companies as small and large depending on their total equity. For voluntary disclosure, the same classification, low and high, devised for total assets was used in the analysis of this variable and all the following variables.

The Chi-square test was then applied to the contingency table. Its result, appearing in TABLE 9.1, indicates a positive relationship between equity and voluntary disclosure with 95 per cent confidence. Further, Gamma and Tau_b statistics support the existence of the relationship, but, to a lesser extent than total assets. For Tau_b, knowing total equity would reduce the error of predicting voluntary disclosure by 19 per cent with 99 per cent confidence.

In addition, the Mann-Whitney statistic supports the hypothesised relationship between total equity and voluntary disclosure. However, the confidence level is 95 per cent and not 99 per cent as in the case of total assets.

In the next stage of testing total equity, the sample was divided into three groups, small, medium, and large companies, using the 33rd and the 66th percentiles of total equity as break points. The companies were then classified accordingly. When applying the Chi-square test to this setting, its statistics do not support the existence of any relationship between total equity and voluntary disclosure. However, Gamma and Tau_b tests reject the null hypothesis. Tau_b indicates when predicting voluntary disclosure, that 12 per cent reduction in error is achieved by knowing total

equity (with 95 per cent confidence).

Additionally, when applying the Kruskal-Wallis test, its statistics show with 90 per cent confidence, that the three groups are drawn from different populations. That is, equity is associated with voluntary disclosure.

This positive relationship is further supported by Spearman's test. According to its statistic, there is a 19 per cent correlation between the total equity and voluntary disclosure with 95 per cent confidence.

To summarise, total equity, according to the above tests, except the three-group Chi-square test, has a positive association with voluntary disclosure. However, its significance is less than total assets.

9.4.1.3 Turnover

In addition to the previous two measures, turnover was also used to represent the size hypothesis. TABLE 9.1 shows the statistical results when the sample was split into two groups, small size and large size companies, using the 50th percentile of turnover as a break point, and after classifying the companies into small and large according to which group each company belongs. In the table, all the three Chi-square based tests, Chi-square, Gamma, and Tau_b, indicate that turnover is a significant factor in explaining the extent of voluntary disclosure. The Tau_b statistic suggests that a 16 per cent reduction in error in predicting voluntary disclosure is attained by knowing turnover with 95 per cent confidence. Further, the Mann-Whitney test confirms, with 95 per cent confidence, that the

two groups are drawn from different populations. That is, there is a positive relationship between turnover and voluntary disclosure.

For the three-group tests, however, the statistical results of all the tests used, i.e., Chi-square, Gamma, Tau_b, Kruskal-Wallis, do not lend support to rejecting the null hypothesis of the relationship between size represented by turnover and voluntary disclosure (see TABLE 9.2 for each test's results).

Lastly, when applying Spearman's test to the data set, the results indicate a small positive 10 per cent correlation between turnover and voluntary disclosure with 95 per cent significance.

In comparing turnover with total assets and total equity, the statistics show that it also has a statistically positive relationship with voluntary disclosure but to a lesser extent and lower level of confidence, but still acceptable.

9.4.1.4 Total Assets Less Current Liabilities

When using this variable to examine the relationship between size and voluntary disclosure, most of the tests' results support the hypothesised positive relationship between the variables.

Firstly, the sample was split into two equal size groups. Thereafter, Chi-square based tests were applied to find out whether this variable is associated with voluntary disclosure. The statistics (see TABLE 9.1) indicates a strong positive relationship. For example, Tau_b is 26 per

cent with 99 per cent confidence. In addition, when using the Mann-Whitney test to compare the two groups, its statistics indicate a significant difference between the two groups regarding voluntary disclosure with 99 per cent confidence.

As for the previous variables, the three-group classification was also applied on this variable. Accordingly, the sample was split into three equal sized groups. The first test used in this new setting was Chi-square and its results do not reject the null hypothesis. However, both Gamma and Tau_b support the existence of a positive relationship between total assets less current liabilities representing size and voluntary disclosure; Tau_b shows a 21 per cent reduction in error in predicting voluntary disclosure by knowing the value of total assets less current liabilities and with 95 per cent confidence (all tests results appear in TABLE 9.2).

Finally, Spearman's correlation between voluntary disclosure and total assets less current liabilities shows 21 per cent association with 99 per cent confidence (see TABLE 9.3).

In summary, all tests performed for this variable, except the three-group Chi-square test, indicate a positive relationship with voluntary disclosure. In addition, in comparison with the other size variables, this variable's association with voluntary disclosure ranks second after that of total assets.

9.4.1.5 Number of Employees

The number of employees has also been used to measure the size of firms. In examining the relationship between number of employees and voluntary disclosure, the sample was first arbitrarily split into two equal size groups. As indicated in TABLE 9.1, all Chi-square based tests support the hypothesised relationship between size represented by number of employees and voluntary disclosure with 99 per cent confidence. Assuming that TAU_b is the most powerful of the Chi-square tests, a 23 per cent reduction in error is likely to occur when using number of employees to predict voluntary disclosure with 99 per cent confidence.

Further, the Mann-Whitney test was applied to find out whether the two groups are drawn from the same population. With 99 per cent confidence, the test statistics show that the two groups are not drawn from the same population, i.e., there is a positive association between number of employees and voluntary disclosure.

When dividing the sample into three groups using the 33rd and the 66th percentiles of number of employees as break points, all tests performed (see TABLE 9.2 for the summary statistic) indicate that number of employees is also positively associated with voluntary disclosure. Firstly, the Chi-square test indicates a positive relationship with 95 per cent confidence. In addition, the statistics of both Gamma and Tau_b support the positive relationship. For example, Tau_b indicates that 14 per cent reduction of error is likely to occur when number of employees is used to predict voluntary disclosure with 95 per cent confidence.

Moreover, the Kruskal-Wallis test was used to compare the three groups and to detect any significant deferences in voluntary disclosure levels between the groups. With 99 per cent confidence, the statistic of the test suggests that number of employees is associated positively with voluntary disclosure.

Lastly, TABLE 9.3 shows that when number of employees was correlated with voluntary disclosure using Spearman's test, the results suggest that there is a 24 per cent correlation between the two variables with 99 per cent confidence.

To sum up, the results of all the non-parametric tests performed support the hypothesised relationship between size, represented by number of employees, and levels of voluntary disclosure. In comparing the number of employees with the other previously examined variables, number of employees ranks second among the five variables used to represent size. This ranking takes into consideration all tests performed, the extent of association, and levels of confidence.

In general and according to the above analysis, the null hypothesis that there is no relationship between size and level of voluntary disclosure can be rejected. The statistics of the non-parametric tests employed suggest that there is a positive relationship between size and voluntary disclosure. Further, all the variables used to represent size have produced positive results. However, the extent of the relationship and levels of confidence have varied

according to the variable used to represent size and the test used.

9.4.2 Gearing

For the purpose of this research, and as indicated earlier, two measures were used to represent gearing: debt to equity ratio and debt to total assets ratio. The analysis in this section is divided into two parts. Firstly, the relationship between voluntary disclosure and the debt to equity ratio is considered. The debt to total assets ratio is considered in the second part.

9.4.2.1 Debt to Equity Ratio

To investigate the relationship between the debt to equity ratio and voluntary disclosure, more than one test was applied, and accordingly, some of the data was transformed to suit each test. The sample was firstly split, arbitrarily, into two groups using the 50th percentile, the median, of the debt to equity ratio as a break point. Thereafter, each company was reclassified as small or large, also an arbitrary classification, according to the value of its debt to equity ratio with reference to the 50th percentile.

Furthermore, the sample was divided into two groups according to the level of voluntary disclosure and by using the 50th percentile of voluntary disclosure as a break point. It was decided to consider any disclosure value below this median as low disclosure and any value above the median as high.

For the test statistics, TABLE 9.4 shows the results of applying the appropriate Chi-square based tests on the two-group data set. All the tests, however, do not support the hypothesised positive relationship between debt to equity ratio and voluntary disclosure. In addition, the Mann-Whitney test statistic does not support the hypothesised relationship.

TABLE 9.4

The Non-Parametric Summary Statistics:
Two Groups Tests-Gearing

VARIABLE	CHI-SQUARE	GAMMA	TAU B	M-W
Debt to Equity Ratio	00	0.0186	0.0093	-0.3656
Debt to Assets Ratio	00	00	00	-0.5812

M-W: Mann-Whitney Test

The above results were also confirmed when the sample companies were classified into three groups by using the 33rd and the 66th percentiles of the debt to equity ratio as break points. Both Chi-Square based tests and the Kruskal-Wallis analysis of variance test, do not reject the null hypothesis that there is no relationship between gearing represented by the debt to equity ratio and levels of voluntary disclosure.

TABLE 9.5

The Non-Parametric Summary Statistics:
Three Groups Tests-Gearing

VARIABLE	CHI-SQUARE	GAMMA	TAU B	K-W
Debt to Equity Ratio	3.8396	0.0683	0.0459	1.9446
Debt to Assets Ratio	3.6523	00	00	1.6321

K-W: Kruskal-Wallis Test

In addition to the above tests, Spearman's correlation test was applied to to the data set without splitting the sample or transforming the data. According to the test statistic, which appears in TABLE 9.6, there is an 11 per cent positive association between gearing, represented by the debt to equity ratio, and voluntary disclosure with 90 per cent confidence. This result confirms the hypothesised relationship.

TABLE 9.6

Spearman's Summary Statistics: Gearing

Gearing Variable	Correlation
Debt to Equity Ratio	0.1134***
Debt to Assets Ratio	0.0800

*** 90% Confidence

9.4.2.2 Debt to Total Assets Ratio

As with the debt to equity ratio, the same procedure was followed to examine the hypothesised relationship between the debt to total assets ratio and voluntary disclosure. Firstly, the sample was divided into two groups using the 50th percentile of debt to equity ratio as a break point. Each company was then classified as small or large according to the value of its debt to assets ratio.

Thereafter, the two-group tests, Chi-square, Gamma, Tau_b, and Mann-Whitney, were applied to the data set. However, there statistics, which are presented in TABLE 9.4, do not support, with the minimum acceptable level of confidence, the hypothesised relationship.

The above results are also supported by the three-group tests. After dividing the sample into three groups using the 33rd and the 66th percentile of the debt to equity ratio as break points, the appropriate tests were conducted to examine the hypothesised relationship. As TABLE 9.5 shows, the statistics of Chi-square, Gamma, Tau_b, and Kruskal Wallis test do not reject the null hypothesis, i.e., no relationship exists between voluntary disclosure and gearing represented by the debt to assets ratio.

Finally, the last test performed to examine the relationship between the debt to assets ratio and voluntary disclosure was Spearman's correlation test. Its results, however, confirm the results of the previous tests and indicate no association at the acceptable level of confidence (90 per cent).

To summarise the results of the non-parametric tests used to examine the relationship between gearing, represented by both debt to equity and debt to assets ratios, and voluntary disclosure, only one test supports the hypothesised relationship. When the debt to assets ratio was used to represent gearing, no test supports the presumed positive relationship. For the debt to equity ratio, all tests, except Spearman's correlation, reject the hypothesised relationship. Spearman's test, however, indicates a small but positive relationship, as was expected, with 90 per cent confidence. Spearman's is the strongest among the tests used. However, the confidence level achieved to reject the null hypothesis of the relationship between gearing and voluntary disclosure is 90

per cent, which is the least acceptable. Therefore, one should be cautious in interpreting this result.

9.4.3 Profitability

Many measures can be used to indicate profitability, some of them represent one period performance and some represent a pattern or trend. This research has employed growth in earnings per share (EPS), for the year under study, return on turnover, and return on total assets. In calculating both return on turnover and return on total assets, operating profit before tax and extraordinary items was used to represent return.

In examining the relationship between each of the profitability measures and voluntary disclosure more than one test was used. However, it was necessary, for some of the tests, to carry out some transformation of the data set.

Before reviewing the results of the tests performed for this variable, its worth recalling that no sign was expected for the relationship between profitability and voluntary disclosure.

9.4.3.1 Return on Assets

To examine the relationship between return on assets and voluntary disclosure, the sample was first split into two groups using the 50th percentile of return on assets as a break point. Then, each company was classified as having a low or high return on assets according to its own return on assets value and whether this value is located above or below the median. The sample was also divided into two groups using the 50th percentile of voluntary disclosure.

TABLE 9.7

The Non-Parametric Summary Statistics:
Profitability-1

VARIABLE	CHI-SQUARE	GAMMA	TAU B	M-W
Return on Assets	0.0000	-0.0392	-0.0196	-0.2009
Return on Turnover	1.4117	-0.2694	-0.1372***	-1.3412***@
Growth in EPS	0.3051	-0.1350	-0.0671	-0.7334

***@ Only One-Way with 90% Confidence
*** 90% Confidence
M-W: Mann-Whitney Test

Chi-square based tests, Chi-square, Gamma, and Tau_b, were then applied to the new transformed data set. Their statistics, however, do not support the existence of any relationship between profitability and voluntary disclosure (TABLE 9.7 displays all the two-group tests performed). In addition, the Mann-Whitney test was conducted to find out if voluntary disclosure of the low profitability group differs significantly from that of the high profitability firms. The results, however, confirm the Chi-square based tests of no relationship.

To explore the data set further, three-group tests were also conducted. For this purpose, the sample was divided into three groups using the 33rd and the 66th percentiles of return on assets as break points. Each company was then classified as low, medium, and highly profitable according to the value of its return on assets with reference to the new classification.

TABLE 9.8

The Non-Parametric Summary Table:
Profitability-2

VARIABLE	CHI-SQUARE	GAMMA	TAU B	K-W
Return on Assets	6.7639***@	-.2437	-0.1646**	3.7893***@
Return on Turnover	1.5640	-0.0230	-0.0153	0.0279
Growth in EPS	4.6474	-0.1685	-0.1134**	2.6353

***@ 90% Confidence (One Way)
** 95% Confidence
K-W: Kruskal-Wallis Test

The results of the tests applied to the three-group setting is presented in TABLE 9.8. Firstly, the Chi-square test supports only a one way relationship. Further, Gamma and Tau_b confirm this conclusion and point to an inverse relationship with 95 per cent confidence (for Tau_b). In addition, the Kruskal-Wallis test shows a one-way inverse relationship between return on assets and voluntary disclosure with 90 per cent confidence.

Finally, Spearman's test was applied to the data set as one group. Its results, presented in TABLE 9.9, shows that there is a 13 per cent inverse correlation between return on assets and voluntary disclosure with 90 per cent confidence. This result confirms that of the two groups tests.

TABLE 9.9

Spearman's Summary Statistics:
Profitability-3

Profitability Variable	Correlation
Return on Assets	-0.1368***
Return on Turnover	-0.0962
Growth in EPS	-0.0683

*** 90% Confidence (One Way)

9.4.3.2 Return on Turnover

Another criterion used to assess profitability of business firms is return on turnover. To examine the relationship between this variable and voluntary disclosure, the same procedure for testing return on assets was followed: first using two-group test and then the three-group tests and finally the one group test.

For the two-group tests, the sample was first split into two groups using the 50th percentile of return on turnover. Then each company was classified as having low or high profitability according to its own return on turnover with reference to the break point. In addition, the sample was divided into two groups using the 50th percentile of voluntary disclosure.

To examine the hypothesised relationship, Chi-square based tests, Chi-square, Gamma, and Tau_b were first employed. However, their statistics, presented in TABLE 9.7, do not reject the null hypothesis of no relationship with a minimum acceptable level of confidence (90 per cent).

Further, when applying the Mann-Whitney test to the data set, the null hypothesis could not be rejected.

When the three-group setting was applied to the data set, the sample was divided into three groups according to the 33rd and 66th percentiles of return on turnover as break points. As with the two-group tests, all tests performed, Chi-square, Gamma, Tau_b, and Kruskal-Wallis, do not reject the null hypothesis of no relationship between return on turnover and voluntary disclosure (the full results appear in TABLE 9.8).

Lastly, Spearman's test was conducted to find if there is any relationship between the two variables without transforming the data set. The result, however, confirms the previous tests and does not lend support to the hypothesised relationship with an acceptable level of confidence.

9.4.3.3 Growth in Earnings Per Share (PER)

The final measure of profitability employed in this research is growth in EPS in the period under study. The importance of this measure arises from its wide usage by the financial community. To investigate the relationship between this measure and voluntary disclosure, the sample was split into two groups using the 50th percentile of EPS as a break point. Each company was then classified as having low or high growth in profitability according to its EPS value with reference to the breaking point.

Subsequently, the following tests were performed on the new data set: Chi-square, Gamma, Tau_b, and Mann-Whitney test. According to the results of these tests, all appear

in TABLE 9.7, the null hypothesis of no relationship between profitability, represented by EPS, and voluntary disclosure could not be rejected.

In addition, the three-group tests were also carried out. First the sample was split into three groups using the 33rd and 66th percentiles of EPS as break up points. After that each company was reclassified as having low, medium, or high profitability according to its EPS with reference to the break points.

The appropriate tests were then conducted on the transformed data set and their results are presented in TABLE 9.8. According to the table, the Chi-square test indicates no relationship between the two variables. However, both Gamma and Tau_b reveal an inverse relationship. Tau_b indicates an 11 per cent negative association between EPS and voluntary disclosure with 95 per cent confidence. Further, when applying Kruskal-Wallis test, its results do not reveal any differences in the voluntary disclosure score between the three groups.

The final test conducted with regard to EPS was Spearman´s test. Its statistics, however, which appear in TABLE 9.9, reveal that there is no significant correlation between voluntary disclosure and profitability as represented by EPS.

In summary, profitability was hypothesised to have a relationship with voluntary disclosure. To test this hypothesis, three measures representing profitability were used in the analysis. When comparing the results of the

tests performed on these measures, return on assets shows a negative relationship with voluntary disclosure in the three-group and one group settings. For return on turnover, however, the results show a negative relationship only when the sample was split into two groups. Additionally, only Gamma and Tau_b tests reveal a negative relationship between earnings per share and voluntary disclosure.

Accordingly, one could reject the null hypothesis of no relationship between profitability and voluntary disclosure. In addition, the statistics of the various tests performed confirm a negative relationship. However, the extent and power of the relationship depends on the test and the variable used in the analysis.

9.4.4 Diversification

To examine the hypothesised relationship between voluntary disclosure and diversification, both line of business diversification index (LOB) and Geographical diversification index (GDI) were used in the analysis. Furthermore, three types of non-parametric tests were conducted: two-group, three-group, and one-group tests.

9.4.4.1 Line of Business Diversification

The line of business diversification index that was devised in Chapter 7 was used in the analysis to measure line of business diversification. To test the effect of this variable on levels of voluntary disclosure, the sample was divided into three groups: non-diversified, low level diversified, and high level diversified companies. For the non-diversified, the companies were already classified to

that effect. However, for the other two groups, the 50th percentile of LOB index for the diversified companies was calculated. Then each company was reclassified as low level or high level diversified according to its LOB index and its location with regard the 50th percentile.

For the voluntary disclosure score, the sample was also split arbitrarily into two groups, low level and high level disclosure, by using the 50th percentile of voluntary disclosure as a break point. Then, the companies were split between the two groups according to the value of their respective disclosure scores and its location with reference to the disclosure score 50th percentile.

Following the above transformation, the appropriate tests were conducted and their statistics appear in TABLE 9.10. Firstly, the Chi-Square test supports rejecting the null hypothesis with 90 per cent confidence (one way). Further, both Gamma and Tau_b confirm the one way relationship with Tau_b indicating a 10 per cent positive relationship between LOB diversification and voluntary disclosure with 95 per cent confidence. In addition, when the Kruskal-Wallis test was used to compare disclosure scores among the three groups, the null hypothesis of no relationship could be rejected.

TABLE 9.10

The Non-parametric Summary Statistics:
Diversification-1

VARIABLE	CHI-SQUARE	GAMMA	TAU B	K-W
Line of Business	3.7565***	0.1877	0.1063**	-5.8549***
Geographical Div.	5.4020***	0.2837	0.1664**	7.1212**

* 99% Confidence
** 95% Confidence
*** 90% Confidence
K-W Kruskal-Wallis Test

The next type of investigation performed was the two-group tests. When using such tests, only the low and high level groups were used in the analysis. For levels of voluntary disclosure, disclosing firms were also classified arbitrarily into a low disclosure group and a high disclosure group according to the 50th percentile of voluntary disclosure for the diversified firms as a break point.

TABLE 9.11

The Non-Parametric Summary Statistics:
Diversification-2

VARIABLE	CHI-SQUARE	GAMMA	TAU B	M-W
Line of Business	0.3799	-0.2308	-0.1013***	-1.1328
Geographical Div.	0.0000	-0.0169	-0.0082	-0.1633

*** 90% Confidence
M-W: Mann-Whitney Test

TABLE 9.11 reports the results of applying the two-group tests on the sample after implementing the above

transformations. The statistics of the tests conducted indicate a mixture of results. For example the Chi-square and Mann-Whitney results do not reject the null hypothesis of no relationship between line of business diversification and voluntary disclosure. However, Gamma and Tau_b indicate that a negative relationship does exist between the variables with 90 per cent confidence for Tau_b.

In addition to the above tests, Spearman's correlation test was also performed without transforming the data set. Its results, presented in TABLE 9.12, indicate 27 per cent positive correlation between line of business diversification and voluntary disclosure with 99 per cent confidence.

TABLE 9.12

Spearman's Summary Statistics: Diversification

VARIABLE	CORRELATION
Line of Business	0.2768*
Geographical Diversification	0.3888*

* 99% Confidence

In summary, the statistics of the tests performed reveal conflicting results with respect to the relationship between LOB diversification and voluntary disclosure. For example, the tests do not reject the null hypothesis of no relationship when the non-diversified firms were excluded from the analysis. However, when the non-diversified firms were included, the tests support rejecting the null hypothesis. As including the non-diversified firms in the

analysis is more logical than excluding them, it could be concluded that there is a positive relationship between LOB diversification and voluntary disclosure.

9.4.4.2 Geographical Diversification

An index similar to that of LOB was used to represent geographical diversification in examining the hypothesised relationship between voluntary disclosure and geographical diversification. Also, for the three-group tests, the sample was divided into three groups: non-diversified, low level diversified, and high level diversified companies. For the non-diversified, the companies were already classified to that effect. However, for the other two groups, the 50th percentile of the geographical index for the diversified companies was calculated. Then each company was reclassified as low level or high level diversified according to its geographical index and its location with regard to the 50th percentile.

For the voluntary disclosure score, the sample was also split into two groups, low level and high level disclosure, by using the 50th percentile of voluntary disclosure as a break point. Then, the companies were split between the two groups according to the value of their respective geographical index and its location with reference to the 50th percentile.

Results of the three-group tests, presented in TABLE 9.10, reject the null hypothesis of no relationship between voluntary disclosure and geographical diversification. Firstly, the Chi-square test rejects the null hypothesis

with 90 per cent confidence. In addition, both Gamma and Tau_b reject the null hypothesis. Tau_b indicates a 16 per cent reduction in error in predicting voluntary disclosure by knowing geographical diversification with 95 per cent confidence. Furthermore, when the three groups were compared with regard to voluntary disclosure by using the Kruskal-Wallis test, the null hypothesis of no relationship is rejected with 95 per cent confidence.

However, when the two-group tests were applied, the null hypothesis could not be rejected with an acceptable level of confidence (TABLE 9.11 shows the full results for the tests applied). As with line of business diversification, only the diversified firms were included in the analysis. This limitation is the likely reason for not rejecting the null hypothesis in the two two-groups setting.

Finally, Spearman's test statistic indicates that geographical diversification is highly correlated with voluntary disclosure. Correlation is 38 per cent with 99 per cent confidence. When this test was applied, all companies in the sample were entered in the analysis including the geographically non-diversified firms.

To sum up, the results of investigating the relationship between diversification and voluntary disclosure reject the null hypothesis of no relationship between the two variables. In addition, the statistics indicate only a positive as opposed to the two way hypothesised relationship. Lastly, although the results reveal that the two measures used to represent diversification have a positive relationship with

disclosure, geographical diversification has the higher level of association.

9.4.5 Percentage of Foreign Turnover

As discussed earlier (in Chapters Two and Three) this variable was stated separately from geographical diversification (tested in the previous section) as the underlying theory behind each one is not the same.

When the relationship between voluntary disclosure and foreign turnover was examined, three groups of tests were applied: two-group, three-group, and one-group type tests. To apply the two-group type tests, the sample was split arbitrarily into two groups, low foreign turnover percentage and high foreign turnover percentage groups; first according to the 50th percentile of foreign turnover for all the companies in the sample and secondly using the 50th percentile of foreign turnover only for the companies with foreign operations. Then, each company in the respective sample was classified as having low or high foreign turnover percentage according to its own foreign turnover value. Each respective sample was split into two groups with regard voluntary disclosure score. Companies with disclosure score below the sample's 50th percentile are assumed to have low disclosure score and companies with disclosure score above the sample's 50th percentile are assumed to have high disclosure score.

The statistics of applying the appropriate tests to the above setting are presented in TABLE 9.13.

TABLE 9.13

The Non-parametric Summary Statistics:
Percentage of Foreign Turnover

Classified into:	CHI-SQUARE	GAMMA	TAU B	M-W/K-W
Two Groups n=85	3.0097**	0.4259	0.2125*	-2.5884*
n=122	8.2474*	0.4904	0.2364*	-3.2508*
Three Groups	12.1966*	0.4966	0.2983*	18.4849*
One Group: Spearman's	0.4555*			

* 99% Confidence
** 95% Confidence
M-W: Mann-Whitney Test
K-W: Kruskal-Wallis Test

As the table shows, the results of the two-group tests reject the null hypothesis of no relationship between voluntary disclosure and percentage of foreign turnover. The Chi-square test, for example, rejects the null hypothesis with 95 per cent confidence for companies with foreign turnover and 99 per cent confidence for all companies. For the direction and extent of the relationship, both Gamma and Tau_b also reject the null hypothesis. Tau_b indicates 21 per cent and 23 per cent association respectively with 99 per cent confidence.

When using the Mann-Whitney test, its statistics also reject the null hypothesis of no relationship with 99 per cent in both classifications.

The three-group design was also examined and the results of all tests applied support the hypothesised relationship. The sample was first classified into two groups: companies without and companies with foreign

turnover. Then, the second group was divided into two subgroups using the 50th percentile of the companies with foreign turnover as a break point.

For the test results, the Chi-square statistic rejects the null hypothesis with 99 per cent confidence. Gamma and Tau_b also reject the null hypothesis with Tau_b showing 29 per cent association with 99 per cent confidence.

In addition, the Kruskal-Wallis analysis of variance test was performed and indicates that a difference does exist between the three groups with regard to voluntary disclosure, i.e., there is a positive relationship between voluntary disclosure and percentage of foreign turnover, with 99 per cent confidence.

Finally, Spearman's test was applied to the original data set without any data transformation. Its results support all the above tests used and indicate a relatively 45 per cent positive correlation between voluntary disclosure and percentage of foreign turnover.

The conclusion of this section, and according to the above results, is that the null hypothesis of no relationship between voluntary disclosure and percentage of foreign turnover can be rejected with a high level of confidence.

9.4.6 Directors' Shareholdings

To examine the hypothesised negative relationship between voluntary disclosure and directors' share equity three methods of testing were carried out. The first was to divide the sample into two groups, low level of directors' equity

and high level of directors' equity, using the 50th percentile of directors' equity as a break point. Then, the companies were classified as having a low or high level of director's equity according to the directors' equity of each firm and its value with regard the 50th percentile.

The same process was also carried out with regard to voluntary disclosure. The sample was split into two groups using the 50th percentile of voluntary disclosure as a break point. After both transformations, the appropriate tests were performed and their results appear in TABLE 9.14.

TABLE 9.14

The Non-Parametric Summary Statistics:
Directors' Equity

Classified into:	CHI-SQUARE	GAMMA	TAU B	M-W/K-W
Two Groups	7.3949*	-0.4919	-0.2626*	-2.4784*
Three Groups	6.1415***	-0.2594	-0.1750*	3.3367***
One Group: Spearman's	-.1994*			

* 99% Confidence
** 95% Confidence
*** 90% Confidence
M-W: Mann-Whitney Test (Two-group)
K-W: Kruskal-Wallis Test (Three-group)

The first test performed was Chi-Square. Its results show that directors' equity is associated with voluntary disclosure with 99 per cent confidence. Further, both Gamma and Tau_b confirm this results with Tau_b showing 26 per cent negative association at 99 per cent confidence level.

In addition, the Mann-Whitney test was also conducted to compare the disclosure scores of the two groups. Its statistic also supports the Chi-square based tests and the hypothesised negative relationship with 99 per cent confidence.

The second procedure followed was to divide the sample into three groups, low, medium, and high directors' equity ownership, using the 33rd and the 66th percentiles of directors' equity as break points. Companies were also split into two groups using the 50th percentile voluntary disclosure score as a break point.

When applying the appropriate tests to the new data set, the results of these tests reject the null hypothesis of no relationship between voluntary disclosure and directors' equity ratio (TABLE 9.14). For example, the Chi-square test rejects the null hypothesis with 90 per cent confidence. Furthermore, Gamma and Tau_b reject the null hypothesis with Tau_b indicating 17 per cent association at 99 per cent confidence level.

The Kruskal-Wallis test was also performed to find out if there is any significant difference in voluntary disclosure scores between the three groups. As was expected and hypothesised, the statistics of the test indicate that there is a difference in voluntary disclosure between the three groups, and therefore, one could reject the null hypothesis with 90 per cent confidence (TABLE 9.14).

Finally, Spearman's test was conducted on the original data. As was stated before, this test shows the extent and

direction of any correlation between two variables. For the two variables under study, the test's statistic suggests a 19 per cent negative association between voluntary disclosure and directors' equity ratio. This result supports the results of all the previous tests.

The conclusion of this section, and according to the tests performed, is that the null hypothesis of no relationship between voluntary disclosure and directors' equity could be rejected with statistically acceptable levels of confidence. In addition, the tests suggest that there is a negative relationship between the two variables as was hypothesised.

9.4.7 Substantial shareholdings

This variable represents the number of shareholders, apart from the directors, who own 5 per cent or more of a company. The range of this variable, for the sample companies, varies from zero to four.

To examine the relationship between voluntary disclosure and this variable, a contingency table was first created for all the values in the range and for the created voluntary disclosure groups. As for voluntary disclosure, the sample was split into three groups using the 33rd and the 66th percentiles of voluntary disclosure. The resultant three groups were considered as representing low, medium, and high levels of disclosure.

TABLE 9.15

The Non-Parametric Summary Statistics:
Substantial Shareholdings

CHI-SQUARE	GAMMA	TAU B	K-W	Spearman's
8.2834	0.1445	0.1040**	2.8204	0.0715

** 95% Confidence
K-W: Kruskal-Wallis (5 Groups)

The constructed contingency table was then examined using the appropriate tests (reported in TABLE 9.15). The first applied was the Chi-square test and its statistics do not reject the null hypothesis of no relationship between the two variables. However, both Gamma and Tau_b reject the null hypothesis with Tau_b indicating a 10 per cent positive relationship with 95 per cent confidence.

In addition, the Kruskal-Wallis test was performed to compare the disclosure scores of the five groups. Its statistics, however, do not support Tau_b, and therefore, do not reject the null hypothesis. Further, Spearman's test was applied and its statistics do not support the hypothesised positive relationship.

Based on the tests performed, the null hypothesis of no relationship between voluntary disclosure and number of substantial shareholders was rejected by only one test statistic. The other tests, and most importantly Kruskal-Wallis which is more appropriate to the original data, do not reject the null hypothesis. As a result one should interpret the results of the positive test with caution.

9.4.8 Executive Share Option Scheme

The variable representing this hypothesis is of a nominal type with two values: yes, if the scheme exists and, no, if it does not. Accordingly, not all the tests applied to the previous variables are appropriate for this one. The following tests were used in the analysis: Chi-square, Lambda, Cramer's V, and Mann-Whitney (the results appear in TABLE 9.16).

TABLE 9.16

The Non-Parametric Summary Statistics: Executive Share Option Scheme

CHI-SQUARE	LAMBDA	CRAMER'S V	M-W
0.0256	00	0.0145	-.1434

M-W: Mann-Whitney Test

To examine the hypothesised relationship between voluntary disclosure and the existence of share option schemes, two methods were used. First Chi-square, Lambda, and Cramer's V tests were applied, where the data must be in contingency table format. To implement these tests, the sample was split into three groups using the 33rd and the 66th percentiles of voluntary disclosure score as break points.

When applying the Chi-square test, Lambda, and Cramer's V, their statistic do not lend support to rejecting the null hypothesis of no relationship between voluntary disclosure and the existence of share option schemes.

The second method used was to apply the Mann-Whitney test without transforming the data. However, its statistics do not also reject the previous tests' results and, therefore, do not support the hypothesised relationship between voluntary disclosure and the existence of share option schemes

9.4.9 The Auditing Firm

In testing the hypothesised relationship between voluntary disclosure and the auditing firm, i.e., whether the auditing firm is one of the Big Eight or not, more than one approach was followed. The first approach used the contingency table format. For the auditing firm variable, firms were classified into two groups, companies audited by a Big Eight firm and companies not audited by a Big Eight firm. In addition, the sample was split into three groups using the 33rd and the 66th percentiles of the sample's voluntary disclosure.

The results of examining the devised contingency table appears in TABLE 9.17. As the table shows, the statistics of Chi-square, Lambda, and Cramer's V do not lend support to rejecting the null hypothesis of no relationship between voluntary disclosure and the type of auditing firm.

TABLE 9.17

The Non-Parametric Summary Statistics: The Auditing Firm

CHI-SQUARE	LAMBDA	CRAMER´S V	M-W	K-W
0.0256	00	0.0145	-.1434	8.3659

M-W: Mann-Whitney Test
K-W: Kruskal-Wallis (9 Groups)

The next technique used was to compare the disclosure score of the two groups of companies, i.e., companies that have been audited by a Big Eight firm and companies not audited by a Big Eight firm, using the Mann-Whitney test. Its statistic, however, supports the results of the previous tests, i.e., the null hypothesis could not be rejected.

In the last method, the sample was split into nine groups using the auditing firm variable, i.e., one group for each auditing firm and one group for the companies that have not been audited by a Big Eight firm. For this setting, the Kruskal-Wallis test was used to compare the disclosure scores of the nine groups and to find out if the individual auditing firms have any influence on the voluntary disclosure of their respective clients. As with the earlier methods, the statistic of the Kruskal-Wallis test does not reject the null hypothesis and does not reveal any significant differences in voluntary disclosure between the tested groups.

In summary, the statistics of the tests described in this section do not lend support to rejecting the null

hypothesis of no relationship between the auditing firm and voluntary disclosure.

9.4.10 The Industrial Sector

To test the industrial sector hypothesis, two types of tests were performed. Firstly, the contingency table format was used. For this purpose, the sample was divided into two groups using the 50th percentile of voluntary disclosure as a break point. The industrial sector variable was represented by a nominal code for each industrial sector. The appropriate tests were then applied to the generated contingency table. The results of these tests is shown in TABLE 9.18.

TABLE 9.18

The Non-parametric Summary Statistics: The Industrial Sector

CHI-SQUARE	LAMBDA	CRAMER´S V	K-W
6.4350	0.1915	0.2536	11.4393*

* 99% Confidence
K-W: Kruskal-Wallis

As the table displays, both Lambda and Cramer´s V suggest that there is a relationship between industry sector and the extent of voluntary disclosure. However, the Chi-square test statistic does not reject the null hypothesis of no relationship between voluntary disclosure and industry sector.

The second method used to examine the effect of industry sector on voluntary disclosure was to compare the voluntary disclosure scores of the industry groups. The

Kruskal-Wallis test was performed to explore this method. However, to apply this test three industry sectors were excluded because their frequencies are less than ten companies each. The three sectors excluded are the Beers, Food, and Oil & Gas. The results of the Kruskal-Wallis test (appearing in TABLE 9.18) reject the null hypothesis of no relationship between voluntary disclosure and industry sector with 99 per cent confidence.

In addition, the test shows (in APPENDIX 9) that voluntary disclosure levels for the Electrical Sector were the highest among the sectors (mean rank for the sector equals 61 and the actual mean value for the sector is 0.29). The lowest voluntary disclosure score, according to the test is that of the Leisure industry. Its mean rank is 35 and actual mean for the industry is 0.21.

To determine the significance of each industry group and which groups are statistically different, additional calculations, using a special formula, were performed (Siegal and Castellan, 1988, p 213). This extension of the Kruskal-Wallis test is based on comparing the means of every two groups to find out if they are statistically different. When applying this technique to the sample, it was found that only two industrial sectors are statistically different from the other groups, i.e., the Electrical and the Leisure sectors.

The conclusion of this section is that the null hypothesis of no relationship between voluntary disclosure and industry sector can be rejected. In addition, not all

industry sectors affect voluntary disclosure, but, according to the statistics of the Kruskal-Wallis test, two industries show more impact than the other sectors.

9.4.11 Tax Status

It was hypothesised that "close" companies, as defined by the tax legislation, are likely to disclose more information than "not close" companies. To test this hypothesis a contingency table for the two variables, voluntary disclosure and tax status, was formed. For this purpose, the sample was split into three groups, low level disclosing companies, medium level disclosing companies, and high level disclosing companies. This was done by using the 33rd and the 66th percentiles of voluntary disclosure as break points.

When the Chi-square test was performed on the contingency table, its statistics (reported in TABLE 9.19) support the hypothesised relationship with 95 per cent confidence. Moreover, both Lambda and Cramer's V reject the null hypothesis of no relationship.

TABLE 9.19

The Non-parametric Summary Statistics: Tax Status

CHI-SQUARE	LAMBDA	CRAMER'S V	M-W
5.4922**	0.1050	0.2175	-2.2894*

* 99% Confidence
** 95% Confidence
M-W: Mann-Whitney Test

Finally, to compare voluntary disclosure of the two groups of companies, "close" and "not close", the Mann-Whitney test was performed on the original data set. According to its statistic, the null hypothesis could also be rejected with 99 per cent.

In summary, the null hypothesis of no relationship between voluntary disclosure and tax status could be rejected. This was confirmed by all the tests performed with the minimum acceptable level of confidence.

9.4.12 Number of Non-Executive Directors

It was hypothesised that there is a positive relationship between the number of non-executive directors and voluntary disclosure. As for the sample companies, the number ranges from zero to eight. However, the number of cases in the upper part of the scale, i.e., above two non-executives, is less than ten. Therefore, it was decided to combine those cases together in one group. This has resulted in the sample being divided into four groups: no non-executive directors group, one non-executive director group, two non-executive directors group, and more than two non-executive groups.

To examine the hypothesised relationship, the Kruskal-Wallis test was performed on the four-group setting. The results of the test (appear in TABLE 9.20), however, do not reject the null hypothesis.

TABLE 9.20

The Non-parametric Summary Statistics: Number of Non-Executive Directors

Number of Sub-groups	K-W/M-W	Spearman´s
4 Groups	3.6901	
2 Groups	-1.4964***	
One Group		0.1567**

** 95% Confidence
*** 90% Confidence
M-W Mann-Whitney Test
K-W Kruskal-Wallis Test

The next approach used was to divide the sample into two groups, one for the companies without non-executive directors, and the other for the companies that has at least one non-executive director. To examine the hypothesised positive relationship and compare disclosure scores of the two groups, the Mann-Whitney test was conducted. According to the test statistics, the null hypothesis could be rejected with 90 per cent confidence.

The Mann-Whitney result was also confirmed by Spearman´s correlation test. Its statistics show that 15 per cent of the variation in voluntary disclosure is explained by the non-executive directors variable (with 95 per cent confidence).

9.5 SUMMARY

This chapter has examined the results of the first group of statistical tests applied to investigate the previously developed hypotheses. The tests used in this chapter were non-parametric and tested each hypothesis individually.

Despite the limitations of such kinds of tests, they are the only statistics that can be used where variables are ordinal or nominal.

The results of the tests support the hypothesised relationship between voluntary disclosure and each of the following: size, percentage of foreign turnover, geographical diversification, line of business diversification, directors' shareholdings, the industry sector, existence of non-executive directors, and tax status. The significance and strength of the relationship varied, however, for the different variables.

In addition, it was hypothesised that there is a relationship between profitability and voluntary disclosure. The results, however, showed an inverse relationship with voluntary disclosure. One explanation of this result would be that management of profitable firms do not wish to reveal detailed information or indications of the sources of its success, and by doing so, protect its position from competitors.

Moreover, according to the statistical results, one could conclude that less profitable companies disclose more information than high profitable companies. As suggested earlier, the likely explanation for this result is that less profitable firms use disclosure of information as a means of informing the markets of their current difficulties. In addition, by disclosing additional information firms avoid any incorrect and unfavourable market speculations concerning the causes of the low level of their profitability.

The statistics, also, reject the null hypothesis of no relationship between voluntary disclosure and gearing when the debt to equity ratio was employed to represent gearing but only when Spearman's test was used. However, when the debt to total assets ratio was, the null hypothesis could not be rejected.

Furthermore, the investigation did not support the presumed relationship between levels of voluntary disclosure and the following variables: existence of executive share option schemes, the auditing firm and the number of substantial shareholders.

As indicated earlier, using non-parametric tests is the first statistical approach to test the hypothesised relationships. The next chapter will develop and design a regression model that will incorporate the hypotheses investigated in this research. In applying the next set of tests special attention will be given to the variables measured with nominal or ordinal scales, and their non-parametric statistics, as well as as the results of this chapter in general.

1.

$$PRE = \frac{\text{Errors using rule 1 - Errors using rule 2}}{\text{Errors using rule 1}}$$

The resulting number indicates the proportional reduction of error and it represents the decrease in errors using rule 2 as a proportion of the errors using rule 1. If there is no relationship between the variables, the independent variable will not help in predicting the dependent variable and the (PRE) equal (0). If there is perfect association between the variables, there is perfect prediction of the dependent variable using information from the independent variable and PRE will equal 1.

As with all PRE measures of association, gamma has two rules for defining error, perfect association and no association.

No Association (E_1):

> The order of ranks for a pair of observations is predicted without reference to the pair of ranks on the independent variable.

To calculate E_1, one first excludes the cases that have the same rank on the dependent variable or the independent variable (concordant pairs or N_s), calculates the number of the remaining pairs (discordant pairs or N_r) and divides the outcome by 2.

$$E_1 = .5\ (N_s - N_r)$$

Error defined by the perfect association rule is the number of errors made if one predicts that all pairs have the same order as on the independent variable.

Perfect Association (E_2):

> The smaller of the two quantities N_s and N_r. If $N_s > N_r$, one would predict, for a pair of ranks on the dependent variable, the same order that was observed on the independent variable. If $N_r < N_s$ one would predict, for a pair of ranks on the dependent variable, the reverse of the order observed on the independent variable.

Also, Gamma, takes advantage of the nature of measurement. It recognises the sense of rank order that characterises an ordinal measure. Since ordinal variables are scales of differences in amount, the fact that some cases are higher than others is reflected in the definition of gamma.

Gamma (Y):

Measuring the amount of association between two ordinal variables by calculating the predictability of the order of a pair of ranks on a dependent variable from knowledge of the order of the pair on the independent variable.

2. Two groups will be independent if all members of both groups are randomly chosen. A group of companies that contain geographically diversified and undiversified companies will yield a group of diversified companies and a group of undiversified companies that will be independent. The requirement of independent is that the choice of members of one group must not affect which in a second group. This does not mean, however, that the groups have to be drawn separately.

3. The calculation of **M-W** test starts by ranking together the data in both groups. by counting the number of observations in group one that are lower than each observation in group two. In this way, each value in the first group is compared to each values in the second. This procedure results in a value called **U**. If this value is found to be very large or very small, then the null hypothesis is rejected .

U has a sampling distribution that has the following parameters:

mean = $\mu = (n1n2)/2$

variance = $\sigma u = \sqrt{(n1n2(n1+n2+1))/12}$

test statistic U = $n1n2 + (n1(n1+1))/2 - R1$

rejection region $\sigma z = (U - \mu)/\sigma u$

where: n1 = size of group one, and

n2 = size of group two.

The mean of the distribution will be **(n1n2)/2** if the null hypothesis of identical populations is true. This sampling distribution allows a **Z** test to see how many standard deviations **U** is away from μ.

CHAPTER TEN

VOLUNTARY DISCLOSURE BEHAVIOUR: DESIGNING AND ANALYSING A REGRESSION MODEL

CHAPTER
TEN

VOLUNTARY DISCLOSURE BEHAVIOUR: DESIGNING AND ANALYSING A REGRESSION MODEL

10.1 INTRODUCTION

The previous chapter was a preliminary step towards investigating the relationship between levels of voluntary disclosure and firms' characteristics that were hypothesised to be associated with voluntary disclosure. The results of the previous tests support the hypothesis that there is a relationship between voluntary disclosure and: size, geographical diversification, percentage of foreign turnover, directors' equity, profitablity, and industry sector. There is also a relationship between voluntary disclosure and line of business diversification but with less significance. The other hypotheses that relate voluntary disclosure with, gearing, existence of executive share option schemes, the existence of non executive directors and the accounting firm could not be supported.

As non-parametric statistics are widely used in social sciences, their lack of use of all the information available in data sets has been a major source of dissatisfaction. For example, the non-parametric Spearman's test transforms data

from the interval or ratio scale to the ordinal scale before it ranks the data. This transformation results in the loss of an important part of the data. In this research, also, the results of many non-parametric tests were dependent in many ways on subjective decisions, among them is how companies were classified as small and large and how companies' voluntary disclosure was also classified as low or high.

Non-parametric tests are useful as indicators and as a first step towards more rigorous investigations. If the data set is appropriate, i.e., availability of some characteristics such as measurement scale and type of distributions of variables, researchers can then advance the analysis with caution and use more rigorous tests. This can achieve three objectives. Firstly, applying additional statistical tests would serve as another source to support the previous tests. In addition, if the results of the previous tests could not be supported, this will lead to questioning both sets of statistics and the researcher should look for the sources of discrepancies, i.e., the theory or the methodology. Lastly, using the advanced tests, i.e., regression analysis, would achieve what most researchers and policy makers aim to do, namely, quantification of the relationship between variables of social and economic importance, and therefore, simplifying this relationship.

The aim of this chapter is to test the hypotheses developed earlier. As each hypothesis was tested individually in the previous chapter, it is also necessary

to test the hypotheses jointly. The observed voluntary disclosure, according to both theory of the firm and capital market based theory, is hypothesied to occur as a result of the variables operating jointly.

To test the hypothesised relationships jointly, the Ordinary Least Squares Regression model (OLS) was used. Regression using the Ordinary Least Squares technique is appropriate because of the nature of the data, i.e., the dependent variable is measured on a ratio scale and the independent variables are measured on ratio, interval, ordinal, and nominal scales. In addition, the OLS technique was chosen because other statistical methods, e.g. ordinal scaled probit, do not give better results with rank ordered data. Output of the OLS regression model is, also, easier to interpret (Kaplan and Urwitz, 1979).

The dependent variable in the regression equation will be the disclosure score that was calculated for each company in the sample. The independent variables will be discussed in the next section. The regression model will attempt to explain the extent to which the amount of voluntary disclosure is a linear additive function of some of the firm's characteristics chosen. Predicting values of voluntary disclosure is a secondary objective. The characteristics of the sample firms represent the main hypotheses of this research and have been decided upon after considering the results of the tests carried out in the previous chapter.

10.2 SELECTING THE BEST REGRESSION EQUATION

The purpose of this section is to determine the best (most important or most valid) subset of the independent variables and the corresponding best-fitting regression model for describing the relationship between voluntary disclosure score (DS) and the independent variables. What is meant by **best** depends in part on the overall goal of modelling.

In general, there are two different goals of regression analysis, (1) to predict the dependent variables using a set of independent variables and (2) to quantify the relationship of one or more independent variables. The difference in the two goals arises because the first focuses on finding a model that fits the observed data and predicts future data as well as possible, whereas the second pertains to producing accurate estimates of one or more regression coefficients in the model. As for the current research, the objective is more in line with the second goal than with the first. The aim is to find a model that gives the best explanation for voluntary disclosure given the independent variables.

In addition to quantifying the relationships, the model should be a valid representation of the phenomenon it is measuring; that is, obtaining valid (i.e., accurate) estimates for one or more regression coefficients in the model and then making inferences about the corresponding parameters of interest.

After deciding on the general design of the regression model and the independent or explanatory variables that were expected to influence voluntary disclosure, the following steps were followed to choose the best model:

1. Specify the maximum model.
2. Specify a criterion and strategy for selecting a final model.
3. Conduct the specified analysis.
4. Evaluate the reliability of the model chosen.

10.2.1 Specifying the Maximum Model

This section considers the process of determining the maximum regression model. The maximum model is defined to be the largest model (having the most explanatory variables). All other models can be created by deleting explanatory variables from the maximum one. The reason behind choosing a maximum model is mainly to avoid making Type II (false negative) errors. In a regression analysis, a Type II error corresponds to omitting an explanatory variable that has a truly non-zero regression coefficient in the population. In any case, overfitting a model (including variables in the model with truly zero regression coefficients in the population) will not introduce bias when estimating population regression coefficients if the usual regression assumptions are met. However, underfitting (leaving important predictors out of the final model) will introduce bias in the estimated regression coefficients.

There are, however, good reasons for working with a small maximum regression model. The need for reliability

(discussed later) strongly argues for a small maximum model, and with a validity goal, the task is to focus on a few important variables. Validity can be achieved by avoiding a Type I error. A Type I error corresponds to including a predictor that has a zero regression coefficient. The desire for parsimony is another important reason for choosing a small maximum model. Unimportant (with very small correlation and R^2 increment) but statistically significant predictors can greatly confuse the interpretation of regression results.

The general idea of reliability is that the number of independent observations needed must be larger than the number of regression coefficients. This notion has led to various guidelines about the size of a maximum model (Hebden, 1981). The most basic constraint is that the error degrees of freedom be positive, with a minimum of 10 degrees of freedom, namely,

$$n - k - 1 \geq 10$$

where,

n = the sample size, and
k = the number of predictors

another rule is to have at least 5 observations per predictor, or, $n \geq 5k$.

Assume, in the current research, that a maximum model involving 15 explanatory variables was considered. To have 10 error degrees of freedom requires a sample of size 26, i.e., 10+16, while the $n > 5k$ rule demands a sample of size 76. The sample size in this research satisfied both rules (as will be seen later).

Lastly, an important notion to consider when specifying the maximum model is collinearity: there are many financial measures, i.e., explanatory variables, that might represent each of the hypotheses. In choosing what variables to include in the model, attention should be given to the problem of multicollinearity between the independent variables and one should avoid including multicollinear variables in the maximum model. The next section addresses this problem in more detail.

10.2.1.1 Multicollinearity

Multicollinearity is the name given to the problem that arises when two or more of the independent variables in an equation are highly correlated (Kleinbaum et al, 1988). If independent variables are collinear, they behave as if there is a linear relation between them. The relationship could be positive so that when one increases in value so does the other by a predictable amount; when one decreases in value by some amount, so does the other in a predictable way. The relationship could also be negative so that as one variable goes up in value, the other systematically goes down. The collinear variables move together- they act in many ways as a single variable. The result of multicollinearity is that it becomes very difficult to separate out the individual effects of each collinear independent variable; this situation is known as joint hypothesis testing.

The effect of this on the estimated results of regression analysis is of the utmost importance. The most important and direct result is the producing of unrealistically high standard errors on the partial

regression coefficients. The abnormally high standard errors are sometimes sufficiently large to cause the calculated t-statistic to be smaller than the critical t-statistic. This results in mistakenly accepting the null hypothesis that the partial regression coefficient is effectively zero. Accordingly, one may interpret the results as showing no relationship between an independent variable and the dependent variable while in fact there is a relationship.

Another problem arising from multicollinearity is exceptional sensitivity to the data set being used in the estimation. This makes it very difficult to replicate results with different data sets on the same variables. As it has become widely accepted in scientific research in the social sciences that replicating results is as important as it is in the natural sciences; this sort of difficulty is most undesirable. If multicollinearity is a problem with either set of data, the partial regression coefficients estimated from one set may be different from those estimated from another.

Lastly, the results of the estimation depend greatly on the exact specification of the model being tested. A minor change in the model being estimated that would normally have very small effects on the parameter estimates will generate grossly different results when independent variables are collinear. In general, relatively minor changes in the specification of the model should not cause drastically different coefficients.

In practice one can check for the presence of multicollinearity by scanning the correlation matrix, APPENDIX 10, for **high** values. However, there is no clear cut answer to this question. Each researcher has her/his own view of what constitutes a **problem level** of the correlation coefficient, **r**. For some, **a high r** is anything above ±0.500; for others it is above ± 0.800. Although there is far from agreement on a cut-off value of the simple correlation coefficient **r**, there is some consensus on the use of a value around ±0.600 (Eastman, 1984), and accordingly, this research will use this value as a cut-off point.

In APPENDIX 10, the first column represents the simple correlation coefficients between the dependent variable, i.e., the voluntary disclosure score, and each independent variable. An example of the multicollinearity in the independent variables is apparent in the correlation between total assets less current liabilities, trading profit, and number of employees. Hence, the inclusion of these three variables in the equation at the same time will cause the estimation to suffer from the potential problems of multicollinearity. However, this will be explained more fully when deciding upon the specification of the regression models.

It seems, then, that if independent variables are correlated problems arise. However, there are several options to solve such obstacles. The first, and obviously best is to get another data set on the same variables that have no multicollinearity. This would be an ideal solution if more data were to be available. However, this is almost

never the case, especially in the social sciences.

A second possible solution to the problem is a **second-best** solution. This involves dropping out collinear variables, but, however, not on a random basis. The theoretical underpinnings of the estimated model should be consulted and followed in deciding which variables are to be left out. The usual approach is to keep the **strongest** variables, with respect to the **economics** of the model, i.e., the theory of the model, in the estimated equation. Furthermore, the results of the non-parametric tests will be considered when deciding upon entering the independent variables.

A further factor that should be considered when building a regression model is the probability distribution of the disturbance variable μ (Hebden, 1981). Regression modelling assumes that this variable is normally distributed (this assumption is based on the Central Limit Theorem). This assumption is necessary for conducting the statistical tests of significance of the parameter estimates and for constructing confidence intervals (Cooper and Weekes, 1983). If this assumption is violated, the estimates of the parameters are unbiased and best, i.e., the estimater has the smallest variance, but one cannot assess their statistical reliability by the classical tests of significance, i.e. F, because this test is based on normal distributions

However, even when the distribution is not normal, one can make use of the Central Limit Theorem and therefore use regression modelling (Koutsoyiannis, 1987 and Shaw &

Wheller, 1985). According to this theorem even if the population is not normal, the distribution of the mean tends to the normal distribution as the sample size n tends to infinite. At first sight even the Central Limit Theorem might seem not very helpful, since in practice n is not large. However, from applied research it has been found that a good approximation has been found to be close for samples as small as 20 (Koutsoyiannis, 1987). As sample size in this research is 122, which is well above the prescribed 20, one can assume that μ is distributed normally.

Additionally, as μ mainly absorbs influences of numerous unimportant variables, it is more likely that small μ values will appear in any particular period than large values, since it is more likely that the researcher will make minor rather than major mistakes when deciding which are the most important variables to be included in the function (Koutsoyiannis, 1987). It is hypothesised in this research that all known important variables will be included in the regression model and therefore a small μ would appear in the fitted model.

After this introduction to the requirements and assumptions of regression modelling, the next section outlines each hypothesis and the variable chosen to represent it.

10.2.1.2 The Independent Variables of the Maximum Model

In choosing the independent variables, the following steps were observed and taken into consideration. First, the results of the non-parametric tests of the previous chapter

were used as a guide in choosing the independent variables that will be included in the model. The theory was also referred to when non-parametric tests provided discrepancies and inconsistent results. Lastly, the correlation matrix was used when collinearity between variables was suspected. The discussion will be arranged in the same order as the hypotheses presented earlier. All the independent variables were extracted from the annual reports and a list of them appears in APPENDIX 11.

In presenting the analysis, a mathematical expression is provided for each hypothesis before presenting the final regression model. Each equation shows the relationship between each variable chosen and voluntary disclosure. Although the analysis is multivariate, i.e., it incorporates together all known factors that are expected to influence voluntary disclosure, the initial equations are presented in a simple bivariate form for illustration.

Firstly, size of firms can be represented by total assets, total equity, turnover, total equity less current liabilities, or number of employees. According to the non-parametric tests all these measures showed a significant relationship with voluntary disclosure. However, including all of them is not appropriate because of the the presence of multicollinearity between the variables. As shown in APPENDIX 10 and in TABLE 10.1 (next page), all these variables are **highly** correlated with each other with coefficients starting from 0.5142.

For the purpose of this research number of employees and turnover were included in the analysis separately in two different models. Number of employees has the strongest correlation coefficient with voluntary disclosure and therefore was included. Further, when the financial press, representing the investors group, refer to company's size, it usually attaches to it sales turnover or number of employees. Therefore, it would be more appropriate to use total turnover or number of employees as surrogates for size.

TABLE 10.1

The Correlation Matrix: Size

	(1)						
1.DISCLOSURE SCORE	1.0000 (117) P= .	(2)					
2.TURNOVER	.1361 (117) P= .072	1.0000 (117) P= .	(3)				
3.TOTAL ASSETS	.1508 (117) P= .052	.7185 (117) P= .000	1.0000 (117) P= .	(4)			
4.TOTAL ASSETS LESS CURRENT LIABILITIES	.1293 (117) P= .082	.5142 (117) P= .000	.9443 (117) P= .000	1.0000 (117) P= .	(5)		
5.TOTAL EQUITY	.1274 (117) P= .086	.5281 (117) P= .000	.9359 (117) P= .000	.9770 (117) P= .000	1.0000 (117) P= .	(6)	
6. NUMBER OF EMPLOYEES	.2747 (117) P= .001	.5225 (117) P= .000	.5909 (117) P= .000	.5360 (117) P= .000	.5669 (117) P= .000	1.0000 (117) P= .	(7)
7. GROWTH IN EPS	-.0690 (117) P= .230	.1125 (117) P= .114	.0477 (117) P= .305	.0157 (117) P= .433	.0140 (117) P= .441	.0826 (117) P= .188	1.0000 (117) P= .

(Coefficient/ (Cases)/ 1-tailed Significance

In addition, turnover was used in the analysis because one of the hypotheses to be tested is concerned with the relationship between turnover, representing growth in the context of managerial theory of the firm and voluntary disclosure.

However, total assets, with the second highest correlation with voluntary disclosure, is highly correlated with the measures of profitability that were also used in the analysis and therefore was not included. Its correlation coefficient with trading profit is 0.7826 and with net profit is 0.7245.

Mathematically, the regression equation that tests the influence of size on voluntary disclosure is:

$$(1)\ DS_i = \alpha + \beta EMPL_i + u_i, \text{ or}$$

$$DS_i = \alpha + \beta TS_i + u_i$$

where;

DS = the disclosure score;

EMPL = number of employees;

TS = total turnover;

u = the error term in the OLS model; and

i = company subscripts.

The second difficulty which arises concerns the selection of the measure representing profitability. The following variables were first entered into the correlation matrix: growth in earnings per share, growth in trading profit, growth in net profit, return on assets, return on

turnover, return on equity, and return on assets less current liabilities. From the matrix, (a summary appears in TABLE 10.2) the measures do not show any statistically significant relationship with voluntary disclosure.

Table 10.2

The Correlation Matrix: Profitability

	(1)					
1.Disclosure Score	1.0000 (117) P= .	(2)				
2.GROWTH IN EPS	-.0690 (117) P= .230	1.0000 (117) P= .	(3)			
3.GROWTH IN TRADING PROFIT	.0302 (117) P= .373	.9064 (117) P= .000	1.0000 (117) P= .	(4)		
4.GROWTH IN NET PROFIT	.0209 (117) P= .402	.4207 (117) P= .000	.3968 (117) P= .000	1.0000 (117) P= .	(5)	
5.RETURN ON TOTAL ASSETS	-.1069 (117) P= .126	.5534 (117) P= .000	.5600 (117) P= .000	.1902 (117) P= .020	1.0000 (117) P= .	(6)
6.RETURN ON TURNOVER	-.0225 (117) P= .405	.4760 (117) P= .000	.5431 (117) P= .000	.1849 (117) P= .023	.4959 (117) P= .000	1.0000 (117) P= .

(Coefficient/ (Cases)/ 1-tailed Significance

As with regard the results of the non-parametric tests, both return on total assets and growth in earnings per share, to a lesser extent, were supported by the Tau_b and Kruskal-Wallis tests. However, return on total assets, which is a historical measure, i.e., it employs the historical cost of assets in the calculation, does not represent management's performance as well as growth in earnings per

share (Popoff and Cowan, 1985). The utilisation of the assets is reflected in earnings. In addition, earnings per share is what investors look for and the bottom line in which they are usually interested.

For the collinearity of growth in earnings per share, the Matrix does not show any significant correlation between this variable and any of the variables entered or to be entered in the models. For this reason and all the above discussed factors, it was decided that the best variable to represent profitability in the regression modelling is growth in earnings per share. Accordingly, the regression model that represents profitability is:

$$(2)\ DS_i = \alpha + \beta DEPS_i + u_i$$

where;

DEPS = the growth in earnings per share; and

the other symbols were as previously defined.

The third hypothesis examined concerned gearing or capital structure. Two variables are usually used to represent gearing, the debt to equity ratio and the debt to total assets ratio. When the two variables were tested using the non-parametric statistics, only one test, the Spearman's correlation, indicated that the debt to equity ratio is significantly associated with voluntary disclosure (with 90 per cent confidence).

However, in the Correlation Matrix, neither variable shows any significant correlation with voluntary disclosure. But, both are highly correlated with each other (0.74 at .00 significance).

As for regression modelling, it was felt that including one of the variables is necessary because theories of voluntary disclosure support the hypothesised relationship. However, the variable included in the regression was the debt to total assets ratio. The underlying explanation for this selection is based on the argument that capital structure should represent the financing of the firm as an entity (the entity view). Any claims from debtors are against the firm (total assets) and not against the net assets, i.e., equity (the proprietary view). Therefore, debt as a percentage of total assets is a better measurement for gearing than debt to equity ratio. The regression equation representing capital structure would be:

$$(3)\ DS_i = \alpha + \beta DEAST_i + u_i$$

where:

DEAST = debt to total assets ratio; and

the other symbols were as previously defined.

For the case of diversification, three measures were used: line of business diversification, percentage of foreign turnover and geographical diversification. APPENDIX 10 indicates no multicollinearity among these variables and the other independent variables. Also, the strongest correlation was between foreign turnover and voluntary disclosure (0.34 at 0.00 significance level). The three measures were used because there is a theoretical justification, discussed earlier, for expecting a positive relationship between voluntary disclosure and these variables. In addition, the non-parametric tests support the hypothesised relationship for all the three variables.

Accordingly, the regression equation that tests the three variables is:

$$(4)\ DS_i = \alpha + \beta_1 FSPER_i + \beta_2 LOB_i + \beta_3 GDI_i + u_i$$

where;

FSPER = foreign turnover percentage;

LOB = line of business diversification index;

GDI = geographical diversification index; and

the other symbols were defined earlier.

The next hypothesis tested was that related to directors' shareholdings. Only one measure can represent this hypothesis, and that is the directors' share in the equity. The correlation matrix reveals no collinearity between this variable and the other independent variables. This variable is one of the main variables intended to be investigated in this research, as it represents an operationalisation of a major argument from agency theory. Furthermore, both the Correlation Matrix and the non-parametric statistics indicate a negative relationship between directors equity and voluntary disclosure. To examine this hypothesis the following regression model representing this hypothesis is:

$$(5)\ DS_i = \alpha - \beta DIREQ_i + u_i$$

where;

DIREQ = directors' shares in the equity; and

the other symbols were as previously explained.

The industry sectors of electricals and leisure were found (using non-parametric tests) to have some associations

with voluntary disclosure. However, when applying the regression model, a group of seven dummy variables was created to represent the industry sector (total categories minus 1) with one variable for each category. The values of the dummy are as follows:

Sector	DY_1	DY_2	DY_3	DY_4	DY_5	DY_6	DY_7
Beers & Wines	1	0	0	0	0	0	0
Building Ind.	0	1	0	0	0	0	0
Drapery & Stores	0	0	1	0	0	0	0
Electricals	0	0	0	1	0	0	0
Food Ind.	0	0	0	0	1	0	0
Leisure	0	0	0	0	0	1	0
Paper & Printing	0	0	0	0	0	0	1
Oil & Gas	0	0	0	0	0	0	0

The use of dummies as explanatory variables in a linear regression model which also includes conventionally-measured regressors involves a basic assumption. The response of the dependent variable to the effect of each conventional regressor is constant, regardless of which dummy group a particular observation belongs to. In other words, the coefficients of the conventional regressors are fixed, whatever dummy group is involved. The way in which the dummies are assumed to act is by shifting the whole regression relationship parallel to itself- by altering the intercept, not any of the slope coefficients. The following is an example illustrating the above assumption.

Suppose voluntary disclosure is linearly related to size in all industry sectors (other things being equal), but the whole function shifts (parallel) according to the industry sector. Then the four parallel regressions (for illustration, only four sectors are included in the example)

representing the industry effect, are:

(6.1) $DS = \alpha_0 + \beta SIZE + u$ for others

(6.2) $DS = \alpha_4 + \beta SIZE + u$ for the electricals sector

(6.3) $DS = \alpha_5 + \beta SIZE + u$ for the food sector

(6.4) $DS = \alpha_6 + \beta SIZE + u$ for the leisure sector

where the intercepts α_0, α_4, α_5, and α_6 differ but the slope with respect to size does not. One could fit these four equations separately to four sets of data, but then it would be most unlikely that there would be four identical estimates for ß, and it would not be possible to know how to use the data. It would be better to use the combined samples to estimate ß. (More observations will, with other things being equal, make a more precise estimate). So combining the equations results in:

(6.5) $DS = \alpha_0 DY_0 + \alpha_4 DY_4 + \alpha_5 DY_5 + \alpha_6 DY_6 + \beta_1 SIZE + u$

As the dummy variables have only two values, 1 or 0; they take the value 1 for any observation that belongs to their particular dummy group (so all food companies will have $DY_5 = 1$, and for them, the other dummies = 0).

Therefore, for any company from the food industry, the equation is:

(6.6) $DS_i = \alpha_0(0) + \alpha_4(0) + \alpha_5(1) + \alpha_6(0) + \beta SIZE_i + u_i$

$= \alpha_5 + \beta SIZE_i + u_i$

and for any company from the leisure sector industry, the equation is:

$$(6.7)\ DS_i = \alpha_6 + \beta SIZE_i + u_i$$

Equations (6.6) and (6.7) are exactly the parallel equations (6.2) and (6.3) that were presented earlier; their intercepts differ (α_5, α_6), but their slope is the same (β). Notice that equation (6.5) contains, it seems, no intercept. The intercept is provided by one or other of the dummy variables' coefficients: the coefficient of the food sector-dummy provides the food sector intercept. If an intercept is introduced, say α, as well as the other dummies in (6.5), one would find it impossible to get estimates of any of the regression coefficients. The reason is that dummies, when added to a regular intercept term, produce a case of perfect multicollinearity (Kleinbaum, et al; 1988).

Basically, the problem is that, although there are three dummy variables represented by three regressors, they do not convey separate pieces of information. If the industry sector dummy has the value of 1 for a particular observation then automatically the other dummies have the value of 0, and vice-versa. So, there will be no loss of any information if one of the dummies is dropped, and by doing that, OLS will be able to work. The dropped dummy group is measured as the norm, and the coefficients of the other dummies measure shifts from this normal level.

The basic equation, therefore, includes dummy variables representing all but one of the industry sectors. Therefore, this single regression actually represents several parallel

lines, each one referring to one of the industrial sectors and not in itself containing these dummies as regressors.

If a regular intercept, α, is included in the equation, and after dropping one of the dummy groups to avoid perfect multicollinearity, the model would be written as follows:

$$(6)\ DS_i = \alpha + \beta_{1i} DY_{1i} + \beta_{2i} DY_{2i} + \beta_{3i} DY_{3i} + \ldots + \beta_{7i} DY_{7i} + u_i$$

where DY_{ni} represents the dummy variable's value (0 or 1) according to the ith firm industry.

Dummy variables were also used to represent other variables hypothesised earlier to influence voluntary disclosure: the auditing firm; the existence of executive share option schemes; and a company's tax status. Three groups of dummy variables were created to represent the three variables. As with industry sector, the following regression models represent the relationships between voluntary disclosure and each one of the hypothesised variables:

$$(7)\ DS_i = \alpha + \beta FIRM_i + u_i$$

where;

$FIRM_i$ = the dummy variable representing the auditing firm;

= 1 if audited by one of the Big Eight Auditing Firms, or
= 0 otherwise.

$$(8)\ DS_i = \alpha + \beta OPTION_i + u_i$$

where:

$OPTION_i$ = the dummy variable representing the existing of executive share option schemes:

= 1 if there is a scheme, or
= 0 otherwise.

(9) $DS_i = \alpha + \beta TAX_i + u_i$

where:

TAX_i = the dummy variable representing the tax status of the companies;

= 1 if a company is closed, or
= 0 otherwise.

Adding all the variables to the regression equation results in two basic maximum models. The first uses total turnover to represent size, and the second uses number of employees. The equations are:

$$(10)\ DS_i = \alpha + \beta_1 TS_i + \beta_2 DEPS_i + \beta_3 FSPER_i + \beta_4 LOB_i + \beta_5 GDI_i + \beta_6 DIREQ_i + \beta_7 DEAST_i + \beta_8 DY_{1i} + \beta_9 DY_{2i} + \beta_{10} DY_{3i} + \beta_{11} DY_{4i} + \beta_{12} DY_{5i} + \beta_{13} DY_{6i} + \beta_{14} DY_{7i} + \beta_{15} FIRM_i + \beta_{16} OPTION_i + \beta_{17} TAX_i .$$

$$(11)\ DS_i = \alpha + \beta_1 EMPL_i + \beta_2 DEPS_i + \beta_3 FSPER_i + \beta_4 LOB_i + \beta_5 GDI_i + \beta_6 DIREQ_i + \beta_7 DEAST_i + \beta_8 DY_{1i} + \beta_9 DY_{2i} + \beta_{10} DY_{3i} + \beta_{11} DY_{4i} + \beta_{12} DY_{5i} + \beta_{13} DY_{6i} + \beta_{14} DY_{7i} + \beta_{15} FIRM_i + \beta_{16} OPTION_i + \beta_{17} TAX_i .$$

In regression modelling, one should try to fit and estimate the maximum possible number of models that feature the hypothesised relationships (Kleinbaum et al, 1988). To decide on the best model, a selection criterion is then used (discussed in the next section) to chose the best model. As for this research, it was decided to develop two models, incorporating two size measures because, one could argue, that each measure represents a different size attribute;

turnover represents the turnover hypothesis developed earlier while number of employees represents investors perception, represented by the financial press, of company size. If the two size measures were included in the same model, it would be difficult to interpret the results, as the two variables are highly correlated.

For the other hypotheses, however, one can assert that each variable chosen was the best representative for the hypothesis, e.g., gearing is best represented by the debt to assets ratio because the hypothesis is concerned with the claims against the whole company not against the equity.

10.2.2 Specifying a Criterion and Strategy for Selecting a Model

The next step in selecting the best regression model is to specify a selection criterion. The criterion is a regression measurement that can be calculated for each suggested model and used to compare models. Obviously, the selection criterion should be related to the goal of the analysis. For this research the goal is to measure the influence of the independent explanatory variables on voluntary disclosure, or, how well the sample supports the theory of the relationship between voluntary disclosure and the independent variables. The model squared multiple correlation R^2 is the measure that states the degree to which changes in a set of independent variables generates changes in the dependent variable, **the explanatory power of the model**. R^2, however, can be misleading because adding predictors, even useless ones, can never decrease R^2. In fact, adding variables will invariably increase R^2 at least

slightly. The adjusted R^2 can be used to overcome such problems. Adjusted R^2 may actually fall if the additional explanatory power generated by an added variable is more than compensated for by the adjustment process.

The second criterion used is the partial correlation coefficient. It can be interpreted as the correlation between the ith independent variable and the dependent variable when the linear effects of the other independent variables have been removed from the ith and the dependent variables.

The strategy for selecting the regression model is concerned with determining how many variables and also which particular variables should be included in the final model. Whenever practical, including the all possible-independent variables strategy is to be preferred over any other selection strategy. It is the only method guaranteed to find the model having the largest R^2. However, entering a variable in the model may alter the F value of the model or the associated significance levels. F statistic, a measure of goodness of fit, determines whether or not all the partial regression coefficients are equal to zero. In more formal terms it tests the null hypothesis that

$$\beta_1 = \beta_2 = \beta_3 = \ldots = \beta_n = 0$$

To prevent altering F, the stepwise selection regression procedure permits re-examination, at every step, of the variables incorporated in the model in the previous steps. At each step a partial F test for each variable presently in the model is made as though it were the most

recent variable entered. That variable with the smallest non-significant partial statistic is removed, and the model is refitted with the remaining variables, the partial F's are obtained and similarly examined, and so on. The whole process continues until no more variables can be entered or removed.

For the purpose of the current research, and in order that a variable enter the regression equation, the probability associated with its F value must be less than or equal to 0.05. In addition, before an independent variable enters the equation, its tolerance with other independent variables already in the equation is calculated (The tolerance is the proportion of variability in an independent variable not explained by the other independent variables). The tolerance level used in this research is 0.01.

10.2.3 Conducting the Analysis

Having specified the maximum models and the criterion and strategy for selecting the variables, the models were examined using the **SPSS PC+ V2** and the **SPSS^{x}** computer programmes. The results of the analysis appear in APPENDIX 12 and APPENDIX 13. This section reviews the results of the two regression models selected as the best maximum models and compares these results with the non-parametric statistics of the previous chapter.

The aim of the analysis is to test the hypotheses of a relationship between voluntary disclosure and the specified independent variables. Predicting specific values for any variable, while important, is a secondary objective. Therefore, the emphasis of the analysis will be on the

magnitude of the relationships not the exact values of the coefficients.

10.2.3.1 The First Model

When using number of employees as the measure for size, the first model included the following independent variables: foreign turnover (FSPER), existence of executive share options (OPTION), number of employees (EMPL), the industry sector Electricals (DY4), debt to total assets ratio (DEAST), directors equity (DIREQ), the industry sector Leisure (DY6), and growth in earning per share (DEPS). The resulting model excluded the other variables: line of business diversification (LOB), geographical diversification (GDI), the other industry sectors, the auditing firm (FIRM), and tax status of the company (TAX). The results of fitting the model are presented in the following equation that relates the predicted voluntary disclosure to the independent variables (the level of significance is in brackets):

$$\begin{aligned} DS = {} & \underset{(.0000)}{0.19} + \underset{(.0000)}{0.00136(FSPER)} + \underset{(.0035)}{0.0194(OPTION)} \\ & + \underset{(.0001)}{0.000037(EMPL)} + \underset{(.0294)}{0.029(DY_4)} + \underset{(.0032)}{0.095(DEAST)} \\ & - \underset{(.0091)}{0.0007(DIREQ)} - \underset{(.0194)}{0.039(DY_6)} - \underset{(0.0892)}{0.0082(DEPS)} \end{aligned}$$

It should be noted that the coefficients in the above equation do not represent the relative importance of each variable. They are used solely for predicting the voluntary disclosure score given specific values for the explanatory variables. The extent and significance of the relationships appear in the columns labelled **Partial** and **Sig T** IN APPENDIX

12. The following analysis of the results is arranged according to the variables entry into the regression equation.

TABLE 10.3

Statistics of the First Regression Model:
Variables in the Equation

Variable	B	SE B	Beta	Correl	Partial	T	Sig T
FSPER	1.364042E-03	2.36777E-04	.43480	.38004	.47647	5.761	.0000
OPTION	.01941	6.50260E-03	.21979	.26927	.27036	2.985	.0035
EMPL	3.657897E-05	9.00774E-06	.29286	.25310	.35686	4.061	.0001
DY4	.02965	.01344	.17302	.31123	.20323	2.206	.0294
DEAST	.09545	.03168	.23007	.04534	.27265	3.012	.0032
DIREQ	-7.03827E-04	2.65209E-04	-.19606	-.15825	-.24222	-2.654	.0091
DY6	-.03919	.01652	-.17927	-.27006	-.21778	-2.372	.0194
DEPS	-8.20979E-03	4.78842E-03	-.12389	-.06481	-.15923	-1.715	.0892
(Constant)	.19037	.02136				8.913	.0000

R^2= 0.450

The statistics of the regression model (TABLE 10.3) indicate that foreign turnover (FSPER) has the strongest relationship with voluntary disclosure, and when first introduced in the equation in step 1, it had a partial correlation of 0.38 at the 0.000 level of significance. This means that 38 per cent of the variation in voluntary disclosure is explained by the foreign turnover percentage. The other statistics which appear in the "Variables not in the Equation Table" part in APPENDIX 12, also indicate that bringing the share option variable to the Equation would add 33 per cent explanation to the as-yet-unexplained variation in the dependent variable. (Note that the sign of the relationship is positive as was expected). However, the absolute contribution of the new variable is 0.096, which is the increase in R^2 to 0.24.

With regard to the non-parametric statistics performed in the previous chapter, the results of the regression modelling confirm those of the non-parametric. Both techniques support the hypothesised relationship between foreign turnover percentage and voluntary disclosure. In addition, the results of both methods indicate that foreign turnover has the strongest relationship with voluntary disclosure.

When adding a new variable to the explanatory variables, one would expect a change in the partial correlation coefficients if there is multicollinearity between the new variable and the previously added variables. For this regression an attempt was made at the beginning to avoid, as far as possible, including collinear variables in the equation. However, the results show a slight change in the partial correlations of the variables. When the executive share option variable (OPTION) was added, the partial correlation of foreign turnover was increased from 38 to 42.5 per cent.

This result of a positive relationship between the existence of share option schemes and voluntary disclosure is contrary to the results of the non-parametric tests. The Non-parametric tests indicate no significant relationships between the two variables. In deciding which result to accept, one should bear in mind that non-parametric statistics are more appropriate than parametric statistics when testing a relationship between a categorical independent variable, e.g., existence of share option schemes, and a continuous dependent variable. As indicated

earlier, dummy variables can be used to represent categorical data in regression modelling, but their results should be interpreted with caution. Regression modelling is appropriate when the dependent and independent variables are measured on a continuous scale, but can be used with categorical data (Kleinbaum et al, 1988).

The next step in the regression was adding number of employees (EMPL), as a measure of size, to the equation. This variable has a partial coefficient of 0.32 at the 0.0003 level of significance. This variable's sign (a positive relationship) was as expected in the theory, the same as the signs of the variables included in the previous steps. Adding number of employees increased R^2 by 0.079 to 0.32, and at the same time increased the correlation of the foreign turnover variable. This collinearity is expected as large firms, usually, are those which operate internationally.

When comparing the results of the regression with that of the non-parametric, both procedures support the hypothesised positive relationship between size, represented by number of employees, and voluntary disclosure. In addition, both techniques show that number of employees is one of the major variables that influence voluntary disclosure.

Another variable that was expected to influence voluntary disclosure was the industry sector. Non-parametric tests supported the hypothesis that industry sector, and in particular the electricals sector (DY4) has a positive relationship with voluntary disclosure. The results

of the regression support the non-parametric tests and when included in the equation, the R^2 increased by 0.0038 to 0.359. This increase appears to be small. However, the partial correlation coefficient for the electricals industry is around 24 per cent. This variable, also, appears to have some collinearity with the foreign turnover and option variables. The correlation coefficients for both variables were decreased when the industry variable electricals was included in the equation.

The next variable of relative importance is that representing capital structure, the debt to total assets ratio (DEAST). This variable has pulled R^2 up to 0.407. Also, the standard error for the model was reduced from 0.065 to 0.064. However, partial correlation between this ratio and voluntary disclosure was 0.18, or adding this variable explains 18 per cent of the as-yet-unexplained variation in the dependent variable. This result is, however, contrary to the non-parametric statistics which do not reject the null hypothesis of no relationship between debt to total assets ratio and voluntary disclosure. When looking at the correlation value for this variable (in the column **Correl**), it shows a very low value of only 0.043, which supports the conclusion of the non-parametric tests. The increase in the value of the simple correlation (0.043) to the value of 0.18 (for the partial correlation) might be caused by a multicollinearity between this variable and the other variables already in the model and not because of a genuine relationship between gearing and voluntary disclosure.

Directors equity (DIREQ), which is one of the major hypotheses in this research was entered in the regression equation in the sixth step. It has added 0.026 to the explanatory power of the model, R^2. As was hypothesised, the sign of this variable appears negative, that is, there is an inverse relationship between voluntary disclosure and directors' equity. The partial correlation is -0.206, and adding it has little effect on the other partial correlations.

Another hypothesis confirmed by the regression model is the relationship between the leisure industry sector (DY6) and voluntary disclosure. The partial correlation for the leisure industry sector has a value of -0.27. This relationship was expected and confirmed by the non-parametric tests. However, it seems to have some collinearity with a previous variable, the directors equity ratio. After including this variable, the partial correlation of directors' equity has increased from -0.206 to -0.249. This indicates a collinearity, although small, between these two variables. The contribution of the leisure industry to the R^2 is about 0.028 and has therefore increased it to 0.436.

The final variable entered into the model was the growth in profitability (DEPS). The simple correlation coefficient for this variable is -0.064 and the partial one is -0.15. This indicates a collinearity between this variable and the other variables in the equation. Also, the correlations show an inverse relationship with voluntary disclosure while it was hypothesised that profitability has

a relationship with voluntary disclosure. The results of the regression, however, agree with the results of the non-parametric tests. Moreover, the effect of this variable upon R^2 is very small and negligible.

The final regression equation (TABLE 10.3) shows the partial correlations and the other statistics concerning the variables included in the model. All variables in the equation have been included on the basis of their significance (at 0.10 or less levels of significance).

In addition, TABLE 10.4 shows the statistics of the variables not included in the final regression equation. Most of the remaining variables have partial coefficients of less than ±0.08 with very low levels of significance. However, two variables were very close to entering the equation. Firstly, there was company tax status (TAX) which has a correlation of 0.12 at the 0.18 level of significance. Previously, when using non-parametric tests, tax status appeared to have a relationship with voluntary disclosure.

TABLE 10.4

Statistics of the First Regression Model:
Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.04921	-.06330	.78861	-.671	.5035
TAX	.10298	.12621	.76149	1.346	.1809
DY1	.07301	.08857	.74508	.941	.3487
DY2	3.4890E-03	.00430	.73066	.046	.9638
DY3	5.4741E-03	.00663	.69772	.070	.9442
GDI	-.05712	-.07478	.79036	-.794	.4291
DY5	-.11833	-.15182	.73656	-1.626	.1069
FIRM	-.03941	-.05109	.79105	-.541	.5893

In addition, the food and grocery industry sector (DY5) had a partial correlation of -0.15 at 0.107 level significance. This result is very close to warrant including in the equation. The Chi-Square tests, performed earlier, supported the existence of a relationship between this variable and voluntary disclosure.

The conclusion concerning the first regression model constructed is that it supports most of the relationships hypothesised in the theory. However, it does not reject the null hypotheses for some of the presumed relationships. The main finding is that the model, where number of employees is used to represent size, rejects the null hypothesis that concerns the relationship between voluntary disclosure and the following variables:

TABLE 10.5

Summary Statistics of the First Regression Model

1. Foreign turnover (FSPER)	at	0.0000 level of significance
2. Share option schemes (OPTION)	at	0.0035 level of significance
3. Number of employees (EMPL)	at	0.0001 level of significance
4. The electrical industry (DY4)	at	0.0294 level of significance
5. Debt to total assets ratio (DEAST)	at	0.0032 level of significance
6. Directors equity (DIREQ)	at	0.0091 level of significance
7. The leisure industry (DY6)	at	0.0194 level of significance
8. Growth in EPS (DEPS)	at	0.0892 level of significance

For the other variables representing the remaining hypotheses, the statistics do not reject the null hypotheses at an accepted level of significance (i.e., 0.10). These hypotheses are concerned with line of business diversification (LOB), the tax status (TAX), geographical diversification (GDI), the audit firm (FIRM) and the rest of the industry sectors.

As for the validity of the correlation coefficients in view of collinearity, there appears to remain a slight collinearity between some of the variables. This has caused a reduction in the partial coefficients of some of the variables when other variables were included in the regression.

Before reviewing the evaluation tests conducted to test the reliability of the previous model, the next section will address the second regression model in some detail. The evaluation of results is left to the section that follows.

10.2.3.2 The Second Model

The second model tested incorporates the same hypotheses investigated in the first model except that it used total turnover (TS) as the variable for size instead of using number of employees. Number of employees (EMPL) was dropped to avoid the known collinearity between the two variables. The analysis in this section concentrates on the differences between the two models as there are many similarities between the two equations (the statistics concerning the second model appear in APPENDIX 13 and a summary in TABLE 10.6).

The first two variables entered the equation in the second model were foreign turnover (FSPER) and the existence of executive share option schemes (OPTION). This is the same as with the first model as these two variables have the highest correlation coefficients among the independent variables. These two variables together explain up to 24 per cent (R^2=0.24) of the variation in the voluntary disclosure variable.

TABLE 10.6

Statistics of the Second Regression Model
Variables in the Equation

Variable	B	SE B	Beta	Correl	Partial	T	Sig T
FSPER	1.341805E-03	2.41298E-04	.42771	.38004	.46192	5.561	.0000
OPTION	.02416	6.48061E-03	.27362	.26927	.32970	3.729	.0003
DY6	-.06069	.01657	-.27759	-.27006	-.32450	-3.663	.0004
TS	5.042811E-10	2.23115E-10	.17091	.13097	.20710	2.260	.0257
DIREQ	-7.88416E-04	2.74675E-04	-.21962	-.15825	-.25962	-2.870	.0049
DY5	-.05384	.02272	-.17389	-.15930	-.21670	-2.370	.0195
DEAST	.07037	.03294	.16963	.04534	.19623	2.137	.0348
(Constant)	.22393	.02097				10.680	.0000

R^2=0.404

When the non-parametric statistics were applied, the null hypothesis of the relationship between foreign turnover and voluntary disclosure was also rejected. However, the hypothesised relationship between executive share option schemes and voluntary disclosure could not be supported.

As a result of removing number of employees, which was in third place to enter the equation in the first model, total turnover (TS) moved to fourth place in importance, and accordingly, the industry sector of leisure (DY6) moved to the third place. Looking at APPENDIX 13, step 2, the partial correlation of the leisure industry (in the variables waiting to enter the equation) is higher than that of the remaining variables. Entering the industry sector leisure to the regression model contributed 0.036 to the explanatory power of the model, R^2, which was increased to 0.272. This result is also consistent with the non-parametric tests which indicate that the leisure companies disclose less information than the companies in the other industry sectors.

The next variable entered into the equation was total turnover (TS) with a partial correlation of 0.244 while its simple correlation was 0.1309. This indicates a multicollinearity between total turnover and one of the variables in the equation. However, the statistic of the turnover variable and the sign of its correlation support rejecting the null hypothesis of the size variable. With this variable the R^2 increased to 0.32.

When compared with the non-parametric tests, both procedures reject the null hypothesis of no relationship between size represented by turnover and voluntary disclosure.

The Directors' equity (DIREQ) partial correlation lends support to the expected sign with a value of -0.21 which is slightly higher than the simple correlation between voluntary disclosure and the directors' equity variable. This result confirms the statistics of the previous model, and the non-parametric tests.

The industry effect appears again in this model when the variable representing the food industry (DY5) entered the equation with a partial correlation of -0.21 at a 0.0219 level of significance. This variable did not enter the first model but was close to the critical level of significance (the non-parametric tests also indicated the significance of this variable). With this variable in the model, R^2 increased to 0.379 enhancing the explanatory power of the model.

The final variable to enter the regression equation was the debt to total assets ratio (DEAST). The partial correlation of this variable is 0.19 while the simple correlation is 0.04; this indicates the presence of multicollinearity between this new variable and at least one of the variables already in the equation, which appears to be directors' equity. However, the size of collinearity does not appear to be more than 4 per cent.

When compared with the non-parametric tests, however, the debt to assets ratio was not a significant factor in influencing voluntary disclosure.

The overall explanatory power of the second model is less than that of the first one. (R^2 equals 45 per cent for the first model and 40 per cent for the second). The equation that relates voluntary disclosure to the independent variables is:

$$DS = \underset{(0.0000)}{0.224} + \underset{(0.0000)}{0.00134(FSPER)} + \underset{(0.0003)}{0.241(OPTION)}$$

$$- \underset{(0.0004)}{0.607(DY6)} + \underset{(0.0257)}{5.043E\text{-}10(TS)} - \underset{(0.0049)}{0.000788(DIREQ)}$$

$$- \underset{(0.0195)}{0.054(DY5)} + \underset{(0.0348)}{0.07037(DEAST)}$$

As with any regression model, the coefficients do not represent in any way the relative importance of each variable in the equation. In addition, all variables in the equation have been included on the basis of their significance, i.e., at 0.10 or less levels of significance. As for the variables that have not been included in the final regression equation, TABLE 10.7 shows the variables, their partial correlations and their levels of significance.

TABLE 10.7

Statistics of the Second Regression Model: Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.09185	-.11527	.82990	-1.234	.2199
TAX	.06278	.07537	.76846	.803	.4234
DY1	2.5431E-03	.00303	.75364	.032	.9744
DY2	-.08402	-.10272	.81009	-1.098	.2746
DY3	-.09900	-.12058	.82990	-1.291	.1993
GDI	-.05474	-.06803	.79346	-.725	.4700
DEPS	-.09301	-.11706	.80431	-1.253	.2128
DY5	.12416	.13722	.72832	1.473	.1436
FIRM	-.06949	-.08533	.82668	-.910	.3646

The main conclusion of the second regression model is that the null hypotheses of foreign turnover, existence of share option schemes, the industry sector of leisure, turnover, directors' equity, the industry sector of food, and the debt to total assets ratio, can be rejected with statistically significant levels of confidence. The extent of the relationships vary from 19 per cent for the debt to total assets ratio to 46 per cent for foreign turnover. The results, however, do not reject the null hypotheses for the other variables.

Before comparing and summarising the results of the two models and the results of the non-parametric tests, the next section outlines the tests performed to investigate the statistical reliability of the two models.

10.2.4 Evaluating the Reliability of the Models

After conducting the analysis and reviewing the results of the two regression models, additional tests were carried out to investigate the reliability of the equations. The

reliability of any model is always related to whether the basic assumptions of regression analysis have been violated or not. Usually, analysis of the residuals is used to look for any violations in the model.

For the linearity of the independent variables with the dependent variable, a plot of the predicted and residual values should show no relationship between them. Any pattern in the plot could indicate that the linearity assumption has been violated. The two models, according to the plots that appear in Appendices 14 and 15 show no violation of the linearity assumption.

The second assumption of the regression models is concerned with the normality of the distribution of the residuals. The distribution of residuals may not appear to be normal for reasons other than actual non-normality, e.g., misspecification of the model, nonconsistent variance. Therefore, two tests were performed to investigate the assumption of normality. Firstly, histograms were constructed for the standardised residuals. The two histograms, for the two models, appear in Appendices 14 and 15. It seems that the normality in the first model is slightly better than that for the second model. This result was confirmed by looking at the cumulative probability plots of the observed and expected residuals. Both plots appear to have near straight line results. However, the second plot (APPENDIX 15) indicates that there are observed residuals above the line more than the first plot (APPENDIX 14).

Finally, outliers can have an impact on the regression statistics. Spotting outliers can be achieved by looking at

the histograms of the residuals (mentioned above) and they appear in the interval column and labelled "out". The histograms, for both models, indicate no outliers with very large positive or negative residuals.

10.3. REVIEW OF THE RESULTS

The resulting statistics of the two models reject the null hypotheses concerning the relationship between voluntary disclosure and foreign turnover percentage, existence of share option schemes, directors' equity, the debt to total assets ratio, and the leisure industry sector. The strongest relationship is between voluntary disclosure and foreign turnover percentage with a partial correlation of 0.46 at 0.0000 level of significance. Geographical diversification, which is another measure for foreign involvment, was not statistically significant (a summary of the non-parametric tests, the first model and the second model appears in TABLE 10.8)

The second important variable is the existence of share option schemes at a 0.0003 level of significance. This variable was expected, according to the hypotheses developed in the early chapters, to have a positive relationship. Also, directors' equity and the debt to total assets ratio showed the expected relationships hypothesised in the literature.

TABLE 10.8

Summary Results: Significance of Variables Tested

Variable Tested	First Regression Model	Second Regression Model	The Non-parametric Statistics
1. Foreign Turnover (FSPER)	Yes	Yes	Yes
2. Share Option Schemes (OPTION)	Yes	Yes	No
3. Number of Employees (EMPL)	Yes	N/E	Yes
4. The Electrical Industry (DY4)	Yes	No	Yes
5. Debt to Total Assets Ratio (DEAST)	Yes	Yes	No
6. Directors Equity (DIREQ)	Yes	Yes	Yes
7. The Leisure Industry (DY6)	Yes	Yes	Yes
8. Growth in EPS (DEPS)	Yes	No	Mix
9. Geographical Diversification (GDI)	No	No	Yes
10. Line of Business Diversification (LOB) .	No	No	Yes
11. Auditing Firm (FIRM)	No	No	No
12. Tax Status (TAX)	No	No	Yes
13. Turnover (TS)	N/E	Yes	Yes
14. The Beers and Wine Industry (DY1)	No	No	No
15. The Building Industry (DY2)	No	No	No
16. The Drapery and Stores Industry (DY3) ..	No	No	No
17. The Food Industry (DY5)	No	Yes	No
18. The Oil and Gas Industry (DY7)	No	No	No

N/E: Excluded from the model.
Mix: The tests indicate inconsistent results.

Comparing these results to the results of the non-parametric tests applied in the previous chapter, indicates the same results for only three of the variables, i.e., foreign turnover, directors' equity and the leisure industry sector. However, tests of the executive share option schemes hypothesis contradicted the non-parameteric tests which showed a significant relationship. This hypothesis was tested in the regression model using a dummy variable. For such categorical variables, one should not eccept the resulting regression statistics at their face value as the non-parametric tests would be more appropriate (a detailed review of the results is provided in the following chapter).

The other variable that appeared to have a significant **inverse** relationship with voluntary disclosure is the leisure industry sector. Companies in this sector seem to disclose less information than those in other industries. Statistics for this variable in all tests, non-parametric and regression, support this result.

For the size hypothesis, the tests indicate that this variable is a significant factor in influencing companies to disclose information voluntarily. Firstly, size has a significant relationship with voluntary disclosure in both regression models and the non-parametric tests. In the regression models, the two variables used to represent size, turnover and number of employees, displayed a significant relationship with the dependent variable. The same results were supported by the non-parametric tests.

Testing profitability gave conflicting results. It was significant when it was in the same equation with the number of employees variable representing size. The sign of the relationship was a negative one, i.e., there is an inverse relationship between size and voluntary disclosure. This result is the same as that of the non-parametric tests. When profitability was used with turnover, in the second regression model, it appeared to have no significant relationship with the dependent variable. Other profitability measures were used in all stages of the analysis, but no significant relationship seemed to exist between this variable and voluntary disclosure.

The electrical industry sector, which constitutes the largest group of companies in the sample, indicates a

significant positive relationship in the first regression model. It has a partial correlation of 0.203 at the 0.029 level of significance. The variable's correlation is the fourth largest among the seven variables in the group. The same result was supported by the non-parametric tests. However, this result should be treated with caution. The tests might have been influenced by the fact that this sector represents a large proportion of the sample.

The final variable that appeared to have a significant relationship with voluntary disclosure is the food industry variable. It was presented only in the second regression model with a -0.21 partial correlation coefficient and a 0.0219 level of significance.

Finally, as the tests of reliability discussed earlier indicated that the first regression model is statistically more reliable than the second, i.e., having a higher R^2, it would be more appropriate to give more weight to the first

10.4 SUMMARY

This chapter has explained the process of developing and designing the regression models that stated the relationship between voluntary disclosure and the hypothesised independent or explanatory variables. Firstly, an analysis was provided of several measures that could represent the independent variables. Attention was given to the problem of multicollinearity when choosing the representative variables. The problem was avoided, although not completely, by devising two regression models representing in them all

the hypotheses developed earlier in the literature. Size was represented by number of employees in the first model, and by turnover in the second model.

The main objective of the analysis was to measure the relationship between the dependent and the explanatory variables, using the OLS technique. No priority was given to prediction, per se, and the discussion was concerned solely with the partial correlation coefficients between the variables. A comparison was also presented between the results of the two regression models designed and estimated and the results of the non-parametric tests performed and described in the previous chapter. The reminder of this summary section provides a brief review of the results while a detailed discussion of the results and implication of the research are presented in the next chapter.

As indicated earlier, the first regression model is more reliable statistically than the second model. The R^2 for the first model is 45 per cent (and the adjusted R^2 is 41 per cent), i.e., the variables in the model explains 45 per cent of the variation in voluntary disclosure of the sample companies. The analysis of both models supports the hypothesised relationship between levels of voluntary disclosure and each of the following economic variables: percentage of foreign turnover, size, directors' equity, and gearing. Also supported, but the results have to be interpreted with caution, is the hypothesis of the relationship between the existence of executive share option schemes and voluntary disclosure.

For the profitability hypothesis, both the first regression model and the non-parametric tests reject the null hypothesis of no relationship between voluntary disclosure and profitability. In particular, the tests indicate an inverse relationship between profitability and levels of voluntary disclosure. As for the second regression model, however, its statistics do not reject the null hypothesis of no relationship.

Further, the leisure industry sector is found to be a significant factor negatively associated with voluntary disclosure. The electrical sector, on the other hand, is positively associated with voluntary disclosure. As with the share option variable, these results have to be looked at carefully because dummy varibles were used in the regression to express this variable.

Finally, with regard to the other variables, the tests do not reject the null hypotheses for the following: line of business diversification, geographical diversification, the auditing firm, tax status, existence of non-executive directors, existence of substantial shareholders and the other industry variables.

CHAPTER ELEVEN

DISCUSSION AND IMPLICATIONS

CHAPTER
ELEVEN

DISCUSSION AND IMPLICATIONS

The results of the statistical tests performed support the hypothesised relationship between voluntary disclosure and the following: size, foreign turnover percentage, profitability, existence of share option schemes, directors' equity, the debt to total assets ratio, and the leisure industry sector. The strongest relationship is between voluntary disclosure and foreign turnover percentage. Geographical diversification, which is another measure for foreign involvement, was not statistically significant. Comparing these results to the results of the non-parametric tests employed in Chapter 9 indicates similar results for only four of the above variables, i.e., foreign turnover percentage, directors' equity, the debt total assets ratio, and leisure industry. Opposite results, however, were indicated for the existence of executive share option schemes.

The purpose of this chapter is to examine in some detail each hypothesis tested and to analyse the results of the statistical tests conducted. Further, the results of this research will be compared with previous studies'

results. Lastly, an attempt will be made to assess the policy implications of this research and how it contributes to the objective of building the foundation of a theory of voluntary disclosure.

11.1 EXPLANATIONS OF THE RESULTS

At first, a methodological issue must be acknowledged: as the investigation involves what is known as joint hypotheses testing, every possible attempt was made to overcome this problem. Problems of joint hypotheses testing arise when one can not relate the extent of the dependent variable association, the voluntary disclosure score in this research, with a particular independent variable. There will be collinearity between the explanatory variables and therefore it is difficult to interpret the results.

Furthermore, the cross-sectional results are consistent with both capital market theories (risk reducing theory) and theories of the firm (contracting costs theory). Unfortunately, the tests are unable to differentiate between the two theories. That is, the researcher cannot tell which theory, contracting costs or risk reduction, provides a better explanation for voluntary financial disclosure. As a result, agency theory is given the same theoretical status as the decision making theory, i.e., risk reduction theory. However, there is no inherent conflict between the two theories.

As regards the acceptability of models developed to explain voluntary disclosure, Zimmerman (1982) suggests that one cannot expect accounting theories to achieve a high level of predictive ability, i.e., high R-squares. Not being

able, he argues, to explain every observation, i.e., not having an R-square = 1, is insufficient reason to reject a model or a theory. For example, the market model in finance has proven enormously useful even though it rarely is able to explain more than 30% of the variability of individual share returns.

Although Zimmerman does not give any reason for his suggestion, it might be due to the nature of social sciences research (which accounting and finance are branches of), which involves studying human behaviour. As human behaviour changes and evolves over time, it would be difficult to predict this behaviour with a high level of certainty. Therefore, one is inclined to accept the validity, although partially, of social and economic models with lower levels of predictive ability than that of the natural sciences.

11.1.1 Extent of Voluntary Disclosure

As indicated earlier, the results of this research support the main hypothesis that USM companies disclose financial information voluntarily. In general, the results support the positive accounting research properties, i.e., accounting practices represented by voluntary disclosure of information varies across firms and industries (Watts and Zimmerman, 1986), and to the extent, on average, of 26 per cent of what could have been revealed. The amount of information disclosed has varied between companies, which is not unusual. While this amount seems to be moderate, it is difficult to determine whether this amount is sufficient or not. Users and the experts on accounting information, e.g., independent auditors, have not agreed on what constitutes

adequate disclosure (Kneer et al, 1985). .pa

Further, the results of this research confirm the results of earlier studies (e.g., Cerf, 1961; Singhvi and Desai, 1971; Choi, 1972: Firth, 1979; Leslie, 1979; Gray and Roberts, 1986). However, all previous research settings were different. USM companies are, on average, smaller than those companies listed on main markets. Further, the price/earning ratios (P/E) for USM companies are higher than those of the Main market (Hoare Govett,1988).

One explanation for USM companies' behaviour in disclosing information voluntarily could be their need for capital. Although USM companies are small in comparison with the Main market companies, they indulge in disclosure voluntarily because they are, according to Hall and Hutchinson (1988) ill-liquid firms with high growth potential. This might be the case in spite of the proposition that for small companies, the costs of disclosure as a percentage of revenues, are likely to be higher than those of large firms.

Another and important contributor to the observed voluntary disclosure behaviour is a USM-specific feature, i.e., the directors share in companies' capital. Directors of USM companies own a higher share, on average, of their companies' equity than their counterparts in the Main market. With regard to this variable, it is important to note that no other research has, prior to this study, included directors' equity in the analysis. This variable represents the fundamental constituent of theories of the

firm literature, and in particular agency theory. The statistics in this research support agency theory hypotheses (Jensen and Meckling, 1976; Watts and Zimmerman, 1978, 1979, 1981, 1986) that managers are likely to disclose information voluntarily to reduce agency costs which are a function of their share in their companies' market value.

A further explanation that applies to the USM and the Main market is that suggested by Bryant and Thornton (1981) and widely cited in the accounting literature. They argue that managers form expectations, assumed to be rational, concerning the accounting standards process which depend not only on their understanding of the process, but also on their ability to influence it through the exposure draft process, service on professional committees, or their association with public auditing firms that can advocate their positions indirectly. Accordingly, companies' managers have rational expectations concerning the possibilities of introducing new disclosure rules, and therefore, they may have decided to disclose the information expected to be mandatory or recommended to be disclosed. Recent and current debate has focused on recommending companies to disclose, for example, segmental information, statements of objectives, future plans and prospects, cash flow and liquidity and foreign currency information (The Corporate Report, 1975; Dept of Trade, 1976; Jeuda, 1980; ASC, 1979; ICAS, 1988).

Risk reduction and agency theory interpretations presented so far, however, do not contradict what Thomas (1983) refers to as contingency theory. Thomas postulates

that certain disclosure practices in corporate reporting may be contingent upon each company's attributes and conditions (what agency theory calls or refers to as underlying economic conditions) of the reporting entity. For this research, these conditions can be represented by the high P/E ratio these companies have in comparison with that of the Main market (Hoare Govett, 1989). Accordingly, one could conclude that USM companies use voluntary disclosure to signal information concerning their performance and expected performance and growth so as to influence the market's assessment of the value of their shares.

As the above analysis has focused on the main hypothesis of this research, the next sections extend the analysis and elaborate on each one of the hypotheses developed earlier.

11.1.2 Size

The results of all tests conducted in this research support the notion that large USM companies are likely to disclose more information voluntarily than are small USM companies (bearing in mind that USM companies are in general smaller than the Main market companies). This result is comparable with most previous studies (Cerf, 1961; Singhvi and Desai, 1971; Choi, Firth, 1979; Leslie, 1979; Atiase, 1985). The degree of association, however, and level of significance have varied according to what financial variable was chosen to represent this hypothesis with number of employees and sales turnover being the most highly correlated measures with voluntary disclosure.

An explanation of the policy of voluntary disclosure by large companies is that it can be viewed as a consequence of their need for outside capital to finance their increasing demand for funds (Watts, 1977; Watts and Zimmerman, 1978, 1979, 1981, 1986). Therefore, to attract investors to finance their capital needs, large companies disclose more information than small companies.

A further two factors are likely to cause such differences in voluntary disclosure between small and large companies. Firstly, the costs of disclosure, e.g., competitive disadvantage and cost of production, are relatively higher (as a percentage of revenues) for small companies than large companies (Firth, 1979). For example, small companies may feel that additional disclosure of their affairs will put them at a competitive disadvantage to large firms (Buzby, 1974). In addition, the fact that large companies have more information to disclose because they have larger volume and more variety of activities means that it is likely that such companies disclose more information than small companies.

11.1.3 Gearing

The empirical investigation of this research supports very moderately the hypothesis that gearing is associated positively with disclosure of information. This result is in line with what has been suggested in the literature and based on the premise that gearing is an important determinant of companies equity risk (Ben-Zion and Shalit, 1975). The more highly leveraged (geared) a financial structure, the greater the risk to shareholders (Rosenberg

and Marathe, 1975).

Signalling theory postulates that increased disclosure of information is likely to signal to markets the quality of a firm's shares which is expected to reduce investors' uncertainty concerning the shares (Stiglitz, 1971; Penman, 1978; Patell, 1979). The agency theory literature, however, substitutes this reduction in uncertainty with the reduction in agency costs (Jensen and Meckling, 1976; Watts and Zimmerman, 1986).

The moderate result of this hypothesis differ from the significant results of the empirical tests of Gray and Roberts (1986). This may be due to the variable used to represent gearing. In Gray and Roberts, the debt to equity ratio was employed to measure gearing while the debt to total assets was used in this research. In addition, the difference in the results might be due to the fact that the USM companies' gearing ratio is, on average, less than the gearing ratio of the Main market which was the research setting of the other studies (ICC, 1989).

The moderate relationship arrived at in this research could be explained by agency theory and a comment by Schipper (1981). According to agency theory, a debtholders-shareholders conflict arises because the holders of fixed claims anticipate that shareholders will attempt to appropriate those claims by, for example, paying large dividends or issuing more senior debt. Schipper (1981) suggests that this conflict could best be solved by explicit contracts between the two groups rather than by increased disclosure. Therefore, one would not necessarily expect a

clear relationship between gearing and voluntary disclosure.

11.1.4 Profitability

As indicated earlier testing profitability represented by growth in earnings per share (EPS) gave conflicting and inconclusive results. Voluntary disclosure was negatively related to profitability only in the first regression model. However, profitability was not a significant factor in the second regression model. In addition, the non-parametric tests for the profitability measures, growth in EPS, trading profit, trading profit to turnover, trading profit to assets, net profit to turnover and net profit to assets, the tests, also, did not support the hypothesised relationship.

Further, the results of this research with regard to profitability are inconsistent with the results of previous research (Singhvi and Desai, 1971; Gray and Roberts, 1986). The inconclusive and inconsistent results could be due to the settings of the investigations and in particular to USM companies' attributes. An important characteristic that is related to profitability is growth in share prices. As indicated earlier, the USM provided some 81% growth in share prices in 1986/87 against around 54% for the All-Share index (Govett, 1989). Accordingly, one could argue that profitable USM companies do not see any need to signal their growth and profitability if the market already perceive them as profitable.

11.1.5 Diversification

Three measures were used in the analysis to represent firm's diversification: an index for product diversification (LOB), an index for geographical diversification (GDI), and foreign turnover as a percentage total revenues (FSPER). The regression analysis showed only FSPER as having the expected positive association with voluntary financial disclosure.

A possible explanation for the insignificant relationship between LOB and voluntary disclosure is that most USM companies specialised in a few products, i.e., LOB's mean is 1.490. Therefore, this variable is not a significant contributory factor to the cross-sectional variance in voluntary disclosure. This explanation could also be applied to geographical diversification (GDI's mean is 1.376).

For foreign turnover, the reason that why companies disclose information voluntarily may be that firms operating in more than one country require a relatively large volume of internal data (such as forecast, performance, and foreign currency information) in order to keep management informed with regard the foreign operations. The existence of this type of data for internal use may lower the cost of supplying it to the public (Buzby, 1974).

Finally, the fact that companies with foreign operations have larger amount of activities than companies without or with less foreign operations, they are expected to have more information available at their disposal, and accordingly, would disclose more information voluntarily.

As for the conflicting results between the percentage of foreign turnover and the geographical diversification hypotheses, the likely possible cause of this inconsistency is the method used in calculating the percentage of foreign turnover and the geographical diversification index. While both variables represent geographical diversification of companies' activities, one would expect a significant correlation between them. However, according to the Correlation Matrix in APPENDIX 10, there is no significant relationship between the two variables. Therefore, the only possible reason for the discrepancy in the statistical results is the method of calculating the two independent variables.

11.1.6 Directors' Shareholdings

All tests performed point to a negative association between directors' share in equity and voluntary disclosure of information. These results confirm one of the major premises of contracting costs theories, i.e., management disclose information voluntarily to reduce agency costs which are a function of management's share in equity, which therefore maximises its utility (Jensen and Meckling, 1976 and Watts and Zimmerman, 1986).

Two particular explanations of the results, also related to agency theory, are outlined here. The first motive for voluntary disclosure can be attributed to the fact that companies with a small management share in their equity make more extensive use of the securities market for external financing of their operations than companies with a larger management share. Companies with a large management

share are likely to rely on managers' own wealth to avoid relinquishing control to outside parties.

Accordingly, as financial markets rely on and demand information, companies are likely to find it difficult to resist supplying information to the markets. The main objective of management in such situations is to obtain investors, raise their confidence in the company and secure their continuous support.

Secondly, one can compare the extent of directors' equity to listing status. As it was shown that listing status is associated with voluntary disclosure (Singhvi and Desai, 1971; Firth, 1979), one could argue that the smaller the directors' equity, the more likely that management consider the firm to be a public company with the responsibility of satisfying the public and the financial press in its demand for information.

11.1.7 Substantial Shareholdings

The tests carried out do not support the hypothesised relationship between the existence of substantial shareholders and the voluntary disclosure of information. As for gearing, one could use the same argument to interpret this result. Shareholders with significant stakes are likely to rely on private contracts between companies and such shareholders without resorting to public voluntary disclosure (Schipper, 1981).

11.1.8 Executive Share Option Schemes

This hypothesis is based on the proposition that managers, shareholders, and debtholders voluntarily enter

monitoring and bonding contracts to reduce agency costs and therefore maximise each group's wealth. For example, Watts (1977) and Watts and Zimmerman (1986) discuss how management compensation tied to accounting profits can reduce the manager/firm-owner interest conflict. Share option schemes represents another type of arrangement and their existence may also indicate an attempt to reduce any significant conflict of interest.

The regression analysis performed suggests that share option schemes, represented by a dummy variable, is the second significant factor positively influencing voluntary disclosure. However, the non-parametric tests do not support the hypothesised relationship. As indicated before, using dummy variables in regression analysis is acceptable but should be interpreted with caution. Therefore, one should give more weight to the non-parametric tests than the regression modelling.

11.1.9 The Auditing Firm

According to the statistics, the auditing firm variable is not significant in determining the amount of information voluntarily disclosed by USM companies. The results of previous studies, however, are inconsistent. Firth's (1979) results, for example, are consistent with the results of this research, while Singhvi and Desai (1971) support the notion of a positive relationship between auditing firm classification and voluntary disclosure.

One likely reason for the conflicting results is the time factor. The Singhvi and Desai study was conducted at a

time when the Big Eight auditing firms were notably recognised and distinguished from the other auditing firms. However, since the late seventies many other firms have also evolved and become prominent. The results of Firth (1979) and this research might have been influenced by the emerging new conditions.

Another reason that may also explain the results relating to this variable is the increase in the general levels of disclosure and regulation. This new climate might have encouraged the other auditing firms to persuade their clients to disclose more information. Accordingly, the statistics for this variable do not lend support to rejecting the null hypothesis of no relationship between the auditing firm and voluntary disclosure.

11.1.10 The Industrial Sector

Testing the influence of the industrial sector on voluntary disclosure indicates, according to the non-parametric tests, that this variable is a significant factor with the electrical and leisure sectors being the most significant sectors.

For the regression analysis, a dummy variable was used in the models to represent the industrial sector. According to the analysis, the electrical sector is significant with a positive sign, similar to the non-parametric test, and the leisure sector is significant with a negative sign.

When evaluating these results, two points should be considered. Firstly, as the electrical sector constitutes a large part of the sample, one is likely to see a biased

results toward this sector. Secondly, as both regression testing and the non-parametric tests show similar results, one should accept the results of this hypothesis with confidence.

11.1.11 Tax Status

According to this hypothesis, "close companies" are assumed to be closely controlled by directors and therefore will disclose less information voluntarily than those that are not close companies. This variable was expected to have the same effect as directors' equity. However, only the non-parametric tests showed this variable as a significant factor in influencing the voluntary disclosure of information.

The regression analysis, though, does not show this variable, expressed as a dummy variable, to be significant. Using dummy variables in the analysis might have influenced the results, and, accordingly, the results should be interpreted carefully. For categorical data, non-parametric statistics are assumed to be more powerful.

11.1.12 Non-Executive Directors

This hypothesis tests whether the existence of non-executive directors has a relationship with USM companies' voluntary disclosure behaviour. It was hypothesised that non-executive directors, representing a distinguished independent force, would encourage management (the executive directors) to disclose information voluntarily.

The statistics of all the tests performed indicate that non-executive directors have association with firms'

behaviour in disclosing information. It appears that such directors' role is limited to operational and advisory functions and not extended to policy issues of an accounting nature.

11.2 RESEARCH IMPLICATIONS

The implications of this research can be classified into two groups: theoretical and policy implications. Firstly, this research is expected to contribute to the development of the economic theory of the firm. In particular, the evidence supports the notion that firms with different economic characteristics employ different accounting practices, i.e., the amount of information disclosed voluntarily varied according to firms' specific economic characteristics.

Further, as positive research results accumulate (including this research) one becomes more knowledgeable about how economic agents function, and therefore, this knowledge can be used as a reference for normative issues, i.e., matters involving prescribing the appropriate accounting pronouncements. This is concerned with the broader issue of "the objectives of accounting" or better known as "conceptual frameworks" (Peasnell, 1982). Where answers to the normative questions always depend on the choice of the criterion or objective function which is a matter of values, answers to positive questions, on the other hand, involve discovery of some aspect of how economic agents behave.

11.2.1 Policy Implications

The second contribution of this research stems from its potential policy implications. One policy model for

accounting regulation suggested in the literature is known as the empirical approach (Buckley, 1980). Solomons (1980, 1986) elaborates on this issue and argue that "empirical research can throw light on how decisions are presently made and what information is used to make them. It can throw light on the impact of an accounting standard on business behaviour and therefore, by implication, on the probable effect on behaviour of a standard that has not yet been issued. It can provide information about the opinions that various interest groups hold about actual or potential standards" (Solomons, 1980, p 7).

Understanding the behaviour of companies is what advocates of "positive theory of accounting standard setting" call for (Watts and Zimmerman, 1978, 1979, 1986). For example, they illustrate how their suggested model of positive theory is capable of predicting which type of firms would be in favour of general price level adjustments and which would be against.

The analysis and evidence in this research have direct implications for studies of accounting regulations. According to the results, one could expect that without externally imposed accounting requirements, managers, shareholders, and debtholders will include accounting procedures, i.e., disclosure of information, as part of their monitoring/bonding contracts.

However, it is crucial to stress that this research is not intended to determine the appropriateness of any particular policy model for disclosure of information

(voluntary versus mandatory). This issue is outwith the purpose of the research.

If policymakers of financial reporting and disclosure are to formulate effective rules, it would seem important for them to monitor existing practices so as to improve their understanding of the environment in which disclosure operates. Policymakers ignoring the evidence from current practices and considering further regulations are likely to neglect important costs and benefits arising from the existing market mechanisms.

As for this research, awareness of companies' behaviour would help in evaluating two important issues in standard setting: acceptability and comparability.

11.2.1.1 Acceptability

An examination of firms' behaviour indicates the extent to which a potential disclosure rule is likely to be acceptable (Solomons, 1986). Solomons cites the incident when the ICAEW members, which is one related party to any new standard, rejected the mandatory system of current cost accounting because the new system was not acceptable to the members (also cited in Peasnell, 1982).

In addition, if a rule proves unacceptable to the concerned parties, and it is sanctioned, because such a rule may have an impact on a firm's investment and financing decisions, compliance with the rule is unlikely (Leftwich, 1980). An example of introducing unacceptable accounting rules is presented in Perks (1983). He shows that compliance with SSAPs, in general, was inadequate and suggests that the

reason was the unacceptability of standards.

For example, the results of this research indicated that a large number of companies in the sample (84.4%) revealed their future plans and strategies. However, disclosing quantitative prospects does not seem to be acceptable for the sample companies with only 7.5% of the sample disclosing such information.

11.2.1.2 Comparability

The value of the information provided by each company to its shareholders is greatly enhanced if it can be compared easily with information from other companies (Solomons, 1986). Knowledge of current practices, as this research can accomplish, is likely to help in pin-pointing the items that most companies are expected to disclose when a new rule is introduced and therefore make the information published by companies comparable.

Segmental information, for example, has been suggested to be of utmost importance to investors so they can assess a company´s extent of diversification and compare it with other companies. The evidence in this research suggests that 92 companies (75 per cent) have revealed some type of information regarding their line of business segments. Geographical segments information, in addtion, is disclosed by 111 companies (91 per cent). Therefore, this evidence reflects the existence of a high level of comparability between USM companies with regard to the information available concerning segmental operations.

In summary, this kind of research is often a starting

point for policymaking because it catalogues the practices currently available and the extent of corporate acceptance of these practices.

11.2.2 Improving Annual Reports

The debate over improving annual reports and their contents in the U.K. has been continuous for a long period of time. Two important attempts to address this issue are relevant to this research and warrant discussing. **The Corporate Report** (1975), although it might be considered as out-of-date, recommended improving companies annual reports by widening their contents to include information concerning the following: (1) value added statement (2) employment conditions report (3) foreign currency information (4) statement of objectives (5) prospects information (6) segmental information.

Thirteen years later, another study, **Making Corporate Reports Valuable (ICAS, 1988)**, recommended improvements in company annual reports to include a variety of information, some of it suggested by the early **The Corporate Report**, e.g., statements of objectives and information on company prospects. The evidence from this research suggests that some of the information is already disclosed by the sample under study, e.g., segmental information, statements of objectives, and prospects information.

This research can assist in pointing the issues where companies are likely to co-operate and disclose the suggested information if a new disclosure rule is introduced. By comparing the results of this research with

what is recommended by **The Corporate Report** (1975) and ICAS (1988) one can speculate the extent to which companies will agree with the recommendations, and which companies are most likely to support or oppose the implementation of a given proposal. In particular, levels of disclosure for any item should provide indications of whether to ask companies to disclose such item or not.

Before describing the implications, it is important to note that in reaching the conclusions of this section, it is assumed that most of the non-disclosed information is available for companies for internal use. In addition, it has been assumed that companies operate according to the rational expectations model, i.e., they are not likely to disclose information voluntarily unless they believe that disclosing the information is benefiting them.

According to the results of this research, it is expected that firms will tend to oppose introducing new disclosure standard or rule where the average voluntary disclosure score for this item is low, e.g., employee information, value added information, and current cost information. In contrast, requesting oil and gas companies to disclose information regarding their reserves is not likely to be opposed as they already disclose such information.

Further, knowing which companies disclose and which do not could be used by accounting regulatory bodies and other accounting policymakers to predict how corporations would react to proposed changes and allow these bodies to concentrate their efforts and target the firms who do not

disclose. For example, and based on the results of this research, the following types of companies are liklely to oppose further disclosure of information:

1) small companies;
2) companies with large directors equity;
3) highly geared companies;
4) low profitability companies; or
5) companies with few foreign activities.

A final note and an important observation is that any new disclosure rule should consider, besides investor protection, the impact it may have on the ability of small business to raise capital. Do sophisticated investors have interests in small companies? Suggestions for increasing disclosure are based on the argument that investors (broadly defined to include current and prospective investors) need the information for their decision-making process. The results of this research indicate that companies are likely to disclose information if they believe that the information is of benefit to them and provided that the costs of disclosure do not exceed the benefits.

11.3 SUMMARY

This chapter has analysed and reviewed the empirical evidence produced by this research. The evidence supports the main hypothesis that USM companies disclose information voluntarily and by different quantities. The results are incapable of differentiating as to which theory, agency theory or risk reduction theory, provides a better explanation of voluntary disclosure.

As regards theories of corporate reporting and disclosure, researchers must be prepared to question general theories. In spite of the pressure for increased disclosure and uniform accounting standards, there is increasing evidence and support for the idea that different companies have different economic characteristics which give rise to different accounting practices, e.g., disclosure of information voluntarily.

In this chapter, explanations were presented for firms' behaviour in disclosing information voluntarily, e.g., the need for capital and level of directors equity. A discussion, also, was presented for each of the hypotheses tested and suggested explanations were given.

Further, knowledge of existing practice is necessary to determine how firms will react to changes in the standard-making process. Unless management's motives are understood, compliance with new disclosure rules is in doubt. Based on this assumption, the research implications on policymakers were reviewed. In particular, if the regulatory bodies decide to mandate an increase in the amount of information disclosed, they are likely to encounter resistance from the small highly geared companies. Further opposition is likely to come from companies managed by owners with considerable shareholdings.

CHAPTER TWELVE

CONCLUSIONS AND FUTURE RESEARCH

CHAPTER
TWELVE

CONCLUSIONS AND FUTURE RESEARCH

12.1 RESEARCH PURPOSE

The purpose of this research has been to investigate and explore the financial reporting practices of the Unlisted Securities Market (USM) companies. In particular, the aim has been to examine the extent to which voluntary disclosure occurs and the associations between voluntary disclosure and some of firm's financial and non-financial attributes. These attributes have been suggested and hypothesised by the accounting literature, i.e., capital market theories and theories of the firm, to effect the extent of voluntary disclosure.

12.2 RESEARCH METHODOLOGY

To test the hypotheses developed from the relevant literature, a sample of 122 USM companies was selected from 8 industries: Beers and Wines, Building and Timber, Drapery and Stores, Electricals, Food and Groceries, Leisure, Paper and Printing, and Oil and Gas.

Suitable variables, mainly financial measures, were

also chosen to represent the hypotheses. To measure voluntary disclosure which is the dependent variable in this research, a disclosure index was devised to include items presumed to be relevant to investors. The annual reports of the companies were used to extract the relevant disclosure items and the independent explanatory variables.

To investigate the hypothesised relationship between voluntary disclosure and the independent variables, two statistical approaches have been followed. Firstly, non-parametric tests were employed to examine each hypothesis individually and to help select the appropriate measure to represent each variable in the second advanced set of tests. Thereafter, two alternative regression models were designed and fitted to express the hypothesised relationship between voluntary disclosure and the chosen independent measures. Attention was given to the problem of multicollinearity among the independent variables. The OLS regression technique was employed in conducting the analysis and estimating the variables' coefficients.

12.3 RESEARCH RESULTS

The conclusion of this study is that voluntary disclosure does occur and varies according to firms' characteristics. Further, voluntary disclosure occurs for every company sampled.

The results point to a substantial variation in the quantity of information disclosed by the companies in the sample. Firstly, there is a positive association between size of companies, using the criteria of number of

employees, and total turnover to represent size, and the amount of financial information disclosed, although the significance of the results varied among the measures of size. This result supports most of the previous empirical research (e.g., Buzby, 1974; Gray and Roberts, 1986).

Another important result is the association between directors' shareholdings and the amount of voluntary disclosure. All the tests performed confirm each other and show that the percentage of directors' shareholdings has an inverse relationship with levels of voluntary disclosure. This supports one of the agency theory propositions that disclosure of information is used by managers to reduce agency costs, especially where the outsiders share in the capital increases. A related variable examined was the existence of executive share option schemes in the company. When using regression analysis, this variable indicated a significant relationship with voluntary disclosure. The non-parametric tests, however, showed no such relationship.

The percentage of foreign turnover, which represents the foreign involvement of firms, was found to have a positive relationship with voluntary disclosure. This variable has the highest correlation among the explanatory variables. When using the geographical index to measure diversity, the regression results, however, do not support the hypothesis that there is a relationship between voluntary disclosure and diversity. The Kruskal-Wallis non-parametric test, however, indicates a positive relationship. Line of business diversification showed the same discrepancy.

Gearing, measured by the ratio of debt to total assets, was also significantly associated, but to a lesser extent, with voluntary information disclosure. With a higher debt ratio, management might perceive that more information is needed to reduce the risk attached to the firm's securities. Also, according to agency theory, higher levels of debt will increase agency costs, and as a result management will disclose information to alleviate debtholders fears.

The last variable that had a significant relationship with voluntary disclosure was the industry sector. Two industrial sectors were found to have a relationship with voluntary disclosure. The electricals industry sector has a positive relationship, while the leisure sector has an inverse relationship.

In addition, the statistics indicate that profitability represented by growth in earnings per share has an inverse relationship with voluntary disclosure. One explanation for this result is that profitable companies are sensitive to disclosing information that might help their competitors. Also, less profitable firms might be trying, through disclosure, to justify their poor performance.

One variable that was examined and indicated conflicting results was the existence of share option schemes. It was expected that this variable would have a positive relationship with voluntary disclosure. When this variable was tested in the regression by using a dummy variable to represent it, the statistics show that a high correlation exists between the existence of share option

schemes and voluntary disclosure. However, the non-parametric tests do not support this conclusion and do not reject the null hypothesis of no relationship. Therefore, one should be cautious in interpreting the results of this variable.

The other variables tested did not display acceptable uniformity in the tests applied. For example, tax status was significant in one of the non-parametric tests. But when applying other tests, and in particular the regression test, tax status was not significant.

The type of auditing firm, whether it is one of the Big Eight or not, was not significantly associated with voluntarily information disclosure. This result contradicts several previous studies. One explanation would be that the big auditing firms are not exerting sufficient pressure on their clients or because the other firms are evolving and attaining the same status as the Big Eight firms.

Furthermore, statistical tests of the variables representing the existence of non-executives on the Boards of Directors and the existence of substantial shareholdings indicated no support to the hypothesised relationship between them and voluntary disclosure.

12.4 RESEARCH IMPLICATIONS

Firstly, the research is expected to contribute to the advancement of the economic theory of the firm, and in particular, to companies' motivations to disclose information voluntarily. The evidence supports the notion

that different companies have different characteristics that lead to different accounting practices.

Further, for practical implications, acknowledging and understanding companies´ behaviour is expected to provide policymakers with relevant information and assist them in formulating their policies. In particular, awareness of the existing accounting practices is likely to be beneficial in assessing the extent of acceptability and comparability of any proposed or potential disclosure standard.

According to the evidence of this research, it is expected that firms with the following characteristics are likely to oppose any new rule that would require them to disclose additional information:

1) small companies;
2) companies with a large percentage of directors equity;
3) highly geared companies;
4) low profitability companies; or
5) companies with few foreign activities.

12.5 RESEARCH LIMITATIONS

The first limitation of this study is that it did not measure disclosure quality, that is, the amount of specific information content that a disclosure has (described more fully in Chapter 7). The research has assumed, for methodological reasons, that each disclosure of a specific item has the same information content. No available technology is capable of measuring the quality of the disclosure item. The difficulty arises because information content is dependent on each companies´ distinctive conditions.

The setting of the research is limited to specified industry sectors of the Unlisted Securities Market. The sample is a very limited group of companies. Therefore, one must be very careful in generalising the results.

Lastly, the analyses in this research have relied on statistical techniques. At all times, care was taken to use the appropriate tests. In order to overcome the limitations of a single technique, more than one test was applied to investigate the same variable, starting from simple procedures and progressing to more advanced tests. However, in some cases, contradictory results were concluded for the same variable, and in particular for two important situations.

When testing the relationship between diversity, represented by both line of business diversification and geographical diversification, the non-parametric tests indicated a positive relationship while the regression models did not include the two variables in the equations. Although OLS models use all the information available in the data set, and the non-parametric tests relax some of conditions concerning the data, the results of both tests have to be interpreted with caution.

The other hypothesis that must be interpreted with caution is the existence of executive share option schemes. When it was tested in the regression model, including it as a dummy variable, it had the second highest correlation coefficient. However, in the non-parametric tests, the results indicated that the variable had no statistically

significant relationship with voluntary disclosure. In testing this kind of hypothesis, the problem of investigating mixed variables (categorical and continuous) arises.

12.6 FUTURE RESEARCH

All the variables used in this research represent one period of time, except one variable used to measure growth in profitability. To understand any phenomenon, beside examining a cross-sectional variation, one needs also to observe it over a period of time so as to explain any changes that might have occurred.

For the tests performed, rather crude variable measures were used in the analysis, e.g., a zero-one dummy variable for the existence of share option schemes. Therefore, more refined tests need to be explored to capture the precise effect of such variables. Further, other measures for political costs needed to be developed. Zmijewski and Hagerman (1981) suggest that size does not represent fairly this variable.

As this research has concentrated on the USM, which is one segment of the capital market, future research should investigate other segments of the capital market, especially the newly emerging third-tier stockmarket.

The variables in this research and in most empirical studies are assumed to represent the behaviour of people, or the management. This is an act of approximation of behaviour and has many shortcomings. The argument supporting this

contention is that these variables are a product of the interaction between the organisation, including the people inside, and the outsiders. The only method of investigation that would capture the real motives is by being one of the team. Interviews or questionnaires are helpful, but they do not reveal hidden motives. However, the methodology followed and the variables used in this research are assumed to measure and represent the actual motives of voluntary disclosure.

Since policymakers presumably are concerned with social welfare, they would be interested in including the social dimension in the analysis of information and voluntary disclosure. In future research, the scope of investigations should expand beyond the tri-party analysis, i.e., management-shareholders-debtholders. For example, relatively little effort has been directed at explaining the behaviour of the other parties in the standard setting process (auditors, regulators, analysts, etc.). Research in this subject is partially conditional on developing theories of the decision process of auditors and regulators , however, the economic theories of partnerships (e.g., audit firms) and the political process are less developed than theories of the firm.

Basic research is also needed as to in principal users´ perceptions, e.g., perceptions of credit investment analysts, of what is considered adequate disclosure.

APPENDICES

APPENDIX 1

The Development of Statutory Regulation of Accounting Disclosure

Companies Acts	Principal Provisions	Objectives
1900 CA	Compulsory audit	Separation of management from shareholdings
1908 CA	Accounts of public companies to be filed with registrar	Public access to information given changing nature of companies
1929 CA	-Increased accounting regulations; profit statement required, though unaudited	-Concern over secret reserves
	-Details on assets and valuation; balance sheet to be "true and correct"	-Measurement of performance over time recognised as important as well as periodic valuation for stewardship
1948 CA	-Balance sheet and profit and loss account to be true and fair	-Appraisal of investment performance
	-Detailed provisions on content of accounts established	-Truth and fairness of overall picture rather than numerical accuracy
	-Group accounts required	-Extending disclosure
1967 CA	Additional disclosure requirements	Increasing disclosure of information
1976 CA	-Accounting reference periods	Clarification of existing statutes
	-Accounting records	
1980 CA	Public companies defined	EEC Second Directive

1981 CA	-Specified format for accounts	-Compliance with requirements of EEC Fourth Directive
	-Included accounting principles in law	-Overriding importance of "true and fair reasserted
	-Classification of Companies	
	-Extended disclosure requirements	
1985 CA	Consolidating 1948-81 CAs	Consolidation of various statutes

Source: Taylor & Truley (1986) pp 44-45.

APPENDIX 2

Statements of Standard Accounting Practice

SSAP 1: Accounting for associated companies. Requires the use of the equity method of accounting for associated companies. The revised standard uses the concept of "significant influence" to define associated company status, as opposed to the holding of between 20 per cent and 50 per cent of the equity voting rights used in the original standard.

SSAP 2: Disclosure of accounting policies. The basic requirement laid down in this statement is that there should be disclosure in the accounts of the accounting policies followed for dealing with items "judged" material or critical in determining profit or loss for the year and in stating the financial position. The explanations given should be "clear, fair and as brief as possible". There is also a requirement that where the accounts are based on assumptions which depart from the four fundamental concepts (going concern, accruals, consistency, and prudency) the fact should be explained. It follows that, unless there is a clear statement to the contrary, there is a presumption that the four fundamental concepts have been observed.

SSAP 3: Earning per share. Only does it apply to Stock Exchange listed companies. Earning per shares are required to be disclosed on the "net" basis for both the current and the previous period. A possibility of future dilution of earnings may arise in the following circumstances:

(a) where the company has issued a separate class of equity shares which do not rank for dividend in the period under review but will do so in the future.
(b) where the company has issued loans or preference shares convertible into equity of the company.
(c) where options to subscribe for equity share have been granted.

SSAP 4: The accounting treatment of government grants. This standard requires that revenue-based grants should be credited to revenue in the same period as the expenditure to which they relate is charged. For this the standard identifies two ways:

(a) by reducing the cost of acquisition of the asset by the amount of the grant, or
(b) by treating the amount of the grant as a deferred credit and transferring a portion to revenue in each period of the asset´s expected useful life.

SSAP 5: Accounting for value added tax. SSAP 5 requires that VAT on taxable outputs should be eliminated from the turnover in the profit and loss account. Irrecoverable VAT on purchases must be incorporated in the cost of the related item.

SSAP 6: Extraordinary items and prior year adjustments. The standard firstly defines the extraordinary items and distinguish them from prior year adjustments. It requires that the accounts should show: profit before extraordinary items, extraordinary items, and profit after extraordinary items. Attributable taxation on extraordinary items should be excluded. For prior year adjustments, it is required to show them in a separate statement from the profit and loss account.

SSAP 8: The treatment of taxation under the imputation system in the accounts of companies. It is required to disclose separately UK corporation tax and overseas taxation. UK taxation must be split between tax on income of the year, investment income, and the relief on overseas taxation.

SSAP 9: Stock and work in progress. According to this standard, the valuation of stocks and work in progress should be at the lower of cost or net realisable value and analysed by main categories. Long-term contract work in progress to be valued at cost plus attributable profit less foreseeable losses and progress payments.

SSAP 10: Statements of source and application of funds. Only companies with annual turnover of at least £25,000 should comply with this standard. It requires that a statement of sources and application of funds should be prepared and include the effect of profit, dividends, share issues and loans, acquisitions and disposals of fixed assets, and changes in working movements in net liquid funds.

SSAP 12: Accounting for depreciation. The statement gives no guidance on the depreciation methods to be used, but it requires that methods should be appropriate to the types of assets. It also requires that a provision be made for depreciation on all "fixed assets having a finite useful economic life". The following must be disclosed in respect of each major class of depreciable asset: the depreciation methods used, the useful life or the depreciation rates used, total depreciation allocated for the period, and the gross amount of depreciable assets and the related accumulated depreciation.

SSAP 13: Accounting for research and development. Requires that all expenditure on research be written off in the year that it is incurred. Development expenditure should also be written off in the year that it is incurred, except that it may be deferred to future periods on certain conditions specified by the statement.

SSAP 14: Group accounts. The statement is based on the view that consolidated accounts will normally be the best way to give a true and fair view of the results and state of affairs of the group. It specifies the rules governing the preparation of the accounts, the conditions of exclusion subsidiaries, and treatment of minority interests.

SSAP 15: Accounting for deferred taxation. The liability method is required to be followed in computing the deferred taxation arising from timing differences between accounting profit and taxable profit.

SSAP 16: Current cost accounting. The compliance with this statement is no longer mandatory. It was mandatory for listed companies and other large firms.

SSAP 17: Accounting for post balance sheet events. SSAP 17 is based on the principle that the accounts must be prepared on the basis of conditions existing at the balance sheet date. It distinguishes between adjusting events and non-adjusting events and the conditions under which to disclose such events in the annual report and accounts.

SSAP 18: Accounting for contingencies. It requires that a provision should be made for a material contingent loss where firstly, it is probable that a future event will confirm the loss, and secondly where the loss can be estimated with reasonable accuracy at the date when the account are formally approved by the directors. Provision should be made in respect of any contingent gain. Where no provision is made for a material contingent loss, full disclosure should be unless the possibility of loss is remote. Disclosure should only be made in respect of a contingent gain where it is probable that the gain will be realised.

SSAP 19: Accounting for investment properties. The main feature of this statement is that investment properties should be included in the balance sheet at their open market value and should not be depreciated. Depreciation is only required where a property is held as a lease.

SSAP 20: Foreign currency translation. Firstly, for individual companies exchange gains and losses should be reported in the profit and loss account. For consolidated statements, however, any exchange differences should be recorded as a movement on reserves.

SSAP 21: Accounting for leases and hire purchase agreements. This standard distinguishes between operating leases and finance leases. It requires detailed disclosure of lease transactions by both lessors and lessees.

SSAP 22: Accounting for goodwill. SSAP 22 states that non-purchased goodwill should not be included in the accounts. Purchased goodwill, however, should not be carried in the balance sheet as a permanent item.

SSAP 23: Accounting for acquisitions and mergers. It draws the line between merger accounting and acquisition accounting and the conditions for using them. Also, it requires disclosure of the names of the combining companies and details of the considerations exchanged in respect of the combinations.

APPENDIX 3

The Unlisted Securities Market General Undertaking

.....(Name of company)
The following is an extract from the minutes of a meeting of the board of directors held the ..... day of..... 19.....

In compliance with the requirements of the Council of the Stock Exchange, it was resolved that the company agrees to comply with the provisions set out below (each such provision in which reference is made to a note to be read and constructed in accordance with and subject to the related notes appearing in the document "the Stock Exchange Unlisted Securities Market").

1. Generally and apart from compliance with all specific requirements which follow, to keep the Stock Exchange informed by means of notifications to the Quotations Department ("the Department") of any information necessary to enable the shareholders and the public to appraise the position of the company and to avoid the establishment of a false market in its securities.

2. To notify the Department in advance of the date fixed for any board meeting at which the declaration or recommendation or payment of a dividend is expected to be determined upon, or at which any announcement of the profits or losses in respect of any financial period or part thereof is to be approved for publication.

3. To notify the Department immediately after approved by or on behalf of the board:

(a) any decision to pay or make any dividend or other distribution or to pass any dividend or interest payment;

(b) a preliminary announcement of profits or losses for any year, half-year or other period;

(c) any proposed change in capital structure;

(d) short particulars of any drawing or redemption of securities.

4. To notify to the Press the basis of allotment of securities in prospectus and other offers, and, if applicable, in respect of excess application, such notice to

appear not later than the morning of the business day next after the allotment letters or other relevant documents of title are posted.

5. To notify the Department immediately after the relevant event of:

(a) particulars of acquisitions or realisations of assets as from time to time required (Note 1);

(b) any information required to be disclosed to the Stock exchange under the provisions of the City Code on Take-Overs and Mergers for the time being in force;

(c) any information known to the company which would be notifiable under the provisions of Section 33 of the Companies Act 1967 as amended by Section 26 of the Companies Act 1976 (author's note: see Companies Act 1985) if the company were subject to such provisions;

(d) any change in the directorate (Note 2);

(e) any purchase by the company, or the group of which the company is part of its redeemable securities;

(f) any board decision to change the general character or nature of the business of the company or of the group;

(g) particulars of dealings by directors in any of the securities of the company traded in the Unlisted Securities Market.

6. To forward to the Department (through the company's brokers) four copies of proofs, for approvals, or all circulars to holders of the company's securities, documents relating to take-overs, mergers, offers, notices of meetings and forms of proxy.

7. To forward to the Department six copies of:

(a) all circulars, notices, reports, announcements or other documents at the same time as they are issued;

(b) all resolutions passed by the company other than resolutions concerning routine business at an annual general meeting.

8. To issue annual reports and accounts within the six months following the date of the end of the financial period to which they relate.

9. To prepare a half-year or interim report which must be sent to the holders of securities or interest as a paid advertisement in one leading daily newspaper not later than six months from the date of the notice convening the annual

general meeting of the company.

10. To circulate with the annual report of the directors:

(a) a statement by the directors as to the reasons for any significant departure from standard accounting practices;

(b) an explanation in th event of trading results shown by the accounts for the period under review differing materially from any published forecast made by the company;

(c) a geographical analysis of turnover and of trading results of those trading operations carried on by the company (or group) outside the UK;

(d) the name of the principal country in which each subsidiary operates;

(e) the following particulars regarding each company (not being a subsidiary) in which the group interest in the equity capital amounts to 20 per cent or more:

(i) the principal country of operation;
(ii) particulars of its issued share and loans capital and, except where the group's interest therein is dealt with in the consolidated balance sheet as an associated company, the total amount of its reserves;
(iii) the percentage of each class of loan capital attributable to the company's interest (direct or indirect);

(f) a statement as at the end of the financial year showing as regards [a] bank loans and overdrafts and [b] other borrowing of the company (or group) the aggregate amounts repayable:

(i) in one year or less, or on demand;
(ii) between one and two years;
(iii) between two and five years; and
(iv) in five years or more;

(g) in respect to the financial year, a statement of the amount of interest capitalised by the company (or group) during the year, with an indication of the amount and treatment of any related tax relief;

(h) a statement as at the end of the financial year showing the interests of each director in the share capital of the company and subsidiary companies appearing in a register maintained under the provisions of the Companies Act 1967 (or which would be required so to appear if the company were subject to the provisions of that Act), distinguishing between beneficial and non-beneficial interests; such statement should include by way of note any change in those

interests occurring between the end of the financial year and a date not more than one month prior to the date of the notice of meeting or, if there has been no such change, disclosure of that fact;

(i) a statement showing particulars as at a date not more than one month prior to the date of the notice of meeting of an interest of any person, other than a director, in 5 per cent or more of the share capital of the company and the amount of the interest in question or, if there is no such interest, a statement of that fact so far as known to the company;

(j) a statement showing whether or not, so far as the directors are aware, the company is a close company for taxation purpose and whether there has been any change in that respect since the end of the financial year;

(k) particulars of any arrangement under which a director has waived or agreed to waive any emoluments;
(l) particulars of any arrangement under which a shareholder has waive or agreed to waive any dividend.

11. To state in a note to the convening the annual general meeting the place and time at which copies or, as the case may be, memoranda of all service contracts will be available for inspection or, if there are no such contracts, to state that fact.

12. To send with the notice convening a meeting of holders of securities to all persons entitled to vote thereat proxy forms with provisions for two-way voting on all resolutions intended to be proposed.

13. In the absence of special Stock Exchange dispensation, to obtain the consent of the company in general meeting prior to:

(a) the company issuing for cash:

(i) equity capital (including capital having an equity element);
(ii) securities convertible into any such capital; or
(iii) warrants or options to subscribe for any such capital or convertible securities;

otherwise than to the equity shareholders of the company in proportion to their existing holdings and, where appropriate, holders of other equity securities of the company entitled thereto; or

(b) any major subsidiary of the company making any issue for cash so as materially to dilute the percentage equity interest of the company and its shareholders in such subsidiary.

14. In the event of a circular being issued to the holders of any particular class of security, to issue a copy or summary of such circular to the holders of all other securities, whether listed or traded in the Unlisted Securities Market, unless the contents of such circular are irrelevant to such other holders.

15. To certify transfers against certificates or temporary documents and to return them on the day of receipt or, should that not be a business day, on the first business day following their receipt and to split and return renounceable documents within the same period.

16. To register transfers and other documents without payment of any fee.

17. To issue, without charge, certificates within:

(a) one month of the date of expiration of any right of renunciation;

(b) 14 days of the lodgement of transfers.

18. To arrange for designated accounts if requested by holders of securities.

19. To pay an annual fee to the Stock Exchange at the rate fixed from time to time.

20. To adopt rules governing dealings by directors in the securities of the company, whether listed or traded in the Unlisted Securities Market, in terms no less exacting than those of the Model Code issued by the Council of the Stock Exchange (Note 3).

I hereby certify that the above is a true and correct extract from the minutes of the board.

NOTES TO THE UNLISTED SECURITIES MARKET GENERAL UNDERTAKING

NOTE 1

(a) Reference should be made to the following tests in order to classify transactions entered into the company:

(i) the value of the assets acquired or disposed of, compared with the assets of the acquiring or disposing company;
(ii) net profits (after deducing all charges except taxation and excluding extraordinary items)

attributable to the assets acquired or disposed of, compared with the profits of the acquiring or disposing company;

(iii) the aggregate value of the consideration given or received, compared with the assets of the acquiring or disposing company;

(iv) equity capital issued by the company as consideration for the acquisition, compared with the equity capital already in issue.

Notification to the Department is required when any of the above tests amounts to 5 per cent or more. The notification should be in the form of an announcement including details of the assets acquired or disposed of, how the consideration was satisfied, the value of the assets, and the profits attributable to those assets.

(b) If one of the above tests amounts to 25 per cent or more, the transaction is considered to be sufficient material to call not only for an announcement but for a circular to be sent to shareholders. The requirements for the contents of such circulars are contained in Section D of the document "The Stock Exchange Unlisted Securities Market". Circulars are required irrespective of whether the consideration was in cash or securities.

(c) The department must be consulted in advance where the relative tests amount to 100 per cent or more, or where a change of control might result.

(d) Transactions which involve, or involve an associate of , a director, substantial shareholder or past substantial shareholder of the company (or any other company being its subsidiary, holding company or a subsidiary of its holding company) should be subject to prior approval of the company in general meeting and the issue of an explanatory circular. Where it is proposed to enter into such a transaction the Department must be consulted as soon as possible, and prior to any contract being entered into.

NOTE 2

A new director may be required to submit a declaration to the Stock Exchange on the form available through the company's brokers.

NOTE 3

The terms of the Model Code are available in booklet from the Department.

APPENDIX 4

Peat Marwick's Industry Classification

Industry Sector	Code	Industry Sector	Code
Hire purchase & leasing	9	Leisure	20
Beers, wines & spirits	10	Motors	21
Building & timber	11	Newspapers	22
Chemicals & plastics	12	Paper & printing	23
Drapery & stores	13	Property	24
Electricals	14	Textiles	28
Engineering & machine	15	Investment trusts	29
Food & groceries	16	Trust & finance	30
Hotels & caterers	17	Oil & gas	31
Industrials (Misc)	18	Plantations	33
Insurance	19	Miscellaneous	35

Source: Peat Marwick (1987).

APPENDIX 5

List of the Sample Companies

Abbeycrest plc
Acorn Computer Group plc
Adam Leisure Group plc
Alphameric plc
A & M Group plc
American Electronic,Components plc
American British International plc
Appletree plc
Aspinall Holdings plc
Asprey and Co plc
ATA Selection plc
Automagic Holdings plc
Bennet and Fountain Group plc
Bio-Isolates (Holdings) plc
Blue Arrow plc,Blue Arrow House
The Body Shop International plc
Brewmaker plc,Brewmaker House
Brikat Group plc,Brikat House
Centeral Independent Television plc
Charlie Brown's Car Part Centers plc
Cheshire Wholefoods plc
Cifer plc
Circaprint Holdings plc
Cluff Oil Holdings plc
Compsoft Holdings plc
Consolidated Tern Investments plc
Continental Microwave (Holdings) plc
Cowells plc
CPU Computers plc
Cranbrook Electric Holdings plc
Mill Group plc
Crown Television Productions plc
Darton International plc,
DBE Technology Group
DDT Group Ltd
Denman's Electrical plc
Druck Holdings plc
Dunton Group plc
EBC plc
Edinburgh Oil and Gas plc
Eldridge, Pope and Co plc
Electronic Data Processing plc
Federated Housing plc
Feedback plc
Fergabrook plc
Floyd Oil Participations plc
Fuller, Smith and Turner plc
Cecil Gee plc
Gibbs Mew plc
The Globel Group plc
Godwin Warren Control Systems plc
Goodhead Print Group plc
Greenwich Cable Communication plc
Hampden Home Care plc
Heavitree Brewery plc
Holmes and Machant Group plc
Hunter Saphir plc
Instem plc
Jack L Israel Group plc
Jacques Vert plc
Jebsens Drilling plc
John Kent plc
John Perkins Meats plc
Kenyon Securities plc
KLP Group plc
Klark-Teknilk plc
Laidlaw Thomson Group plc
Leisure Investment plc
London and Clydeside Holdings plc
LPA Industries plc
Lysander Petroleum plc
Maxiprint plc
McLaughlin and Harvey plc
Media Techcology International plc
Merrydown Wine plc
Michael Peters Group plc
Microlease plc
Miles 33 plc
Millward Brown
Miss World Group plc
MMT Computing plc
Monument Oil and Gas plc
The Moorgate Group plc
Moss Advertising Group plc
Norbain Electronics plc
Osborne and Little plc

Owners Abroad Group plc
Penny and Giles International
Pepe Group plc
Pericom plc
Piccadilly Radio plc
Pict Petroleum plc
Pineapple Group plc
Plasmec plc
Questel plc
Radio City plc
Radio Clyde plc
Radius plc
Ramus Holdings plc
Real Time Control plc
Rex Williams Leisure plc
Rivlin Holdings plc
Robert Horne Group plc
Sangers Photographics plc
Scanro Holdings plc
Scantronic Holdings plc
Shandwick plc
Share Drug Stores plc
Sherwood Computer Services plc
Sigmex International plc
T and S Stores plc
Tay Homes plc
TDS Circuits plc
Telecomputing plc
Thermal Scientific plc
TMD Advertising Holdings plc
Trilion plc
Tyne Tees Television,Holdings plc
United Ceramic Distributors plc
Viewplan plc
Wayne Kerr plc
World of Leather plc

APPENDIX 6

Disclosure Index

Company Name .....

Company Number .....

Year End .....

General

1. Description of company history .....
2. Charts or information about organisational structure
3. Future plans, strategies, and objectives. .....
4. Information on future prospects- general statement.

If yes, is this for:

5. Future prospect of the economy .....
6. Future prospect of the industry .....
7. Future prospect of the company .....
8. Information on company prospects- quantitative. ...
9. Information relating to company's order book .....
10. Information on major customers or target markets ..
11. Last year acquisitions and bids- narrative review
12. Last year acquisitions and bids- effects on profits

Employment information

13. Is the number of employees less than 250
14. If yes, is there a statement about disabled and .. pensions conditions
15. Employment condition statement relating to training trade unions and industrial relations

Line of business information

16. Turnover by line of business .....
17. Profits by line of business .....
18. Assets by line of business .....

19. Capital expenditures by line of business .....

If no information are presented is the reason as

20. Inapplicability .....

21. Other reasons .....

Geographical information

22. Turnover by geographical area .....

23. Profits by geographical area .....

24. Assets by geographical area .....

25. Capital expenditures by geographical area .....

If no information are presented is the reason given as

26. Inapplicability .....

27. Other reasons.....

R&D Information

28. Are R&D activities provided .....

If yes, is this for

29. Information relating to R&D-narrative .....

30. Information relating to R&D-last year´s expenditure

31. Information relating to R&D-future commitments ...

If no, is the reason given

32. Inapplicability .....

33. Other reasons .....

Assets description

34. Breakdown of assets by type of assets .....

35. Description of major properties and premises .....

36. Information about capital expenditure projects ... in progress.

37. Plans for future capital expenditure projects ....

38. Description of major products or services .....

39. Description of major patents or rights .....

40. Disclosure of net realisable value of stock .....

Foreign Operations

41. Amount of last year's foreign currency gains (loss) ☐

42. If yes, is this separately disclosed for ..... ☐
translation and transactions

43. Information relating to foreign exchange impact ... ☐

44. Description of foreign assets and locations ..... ☐

If no, is the reason given as

45. Inapplicability ..... ☐

46. Other reasons ..... ☐

Other Information

47. Historical data relating to last 3-5 years ..... ☐

48. Current Cost Accounting (CCA) adjusted profits. ... ☐

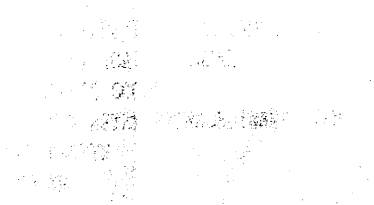
49. Reasons for not providing CCA information ..... ☐

50. Any value added information ..... ☐

51. description of disputes or any legal proceedings. . ☐

52. Information related to production levels and ..... ☐
capacity. (For Industrials)

53. Detailed information related to production and ... ☐
licences. (For oil companies)



APPENDIX 7

Companies´ Profile

	MEAN	STD DEV	MINIMUM	MAXIMUM	VALID CASES
DEPS	.028	1.247	-6.588	5.130	122
DTRPO	.071	1.258	-6.106	3.348	122
TS	18689450.7	27544646.5	12000	195178000	122
TA	12419976.9	15383359.3	360349	91165000	122
TALCL	7145290.61	10206523.3	-872906	63077000	122
TE	6011762.10	9189485.77	-1562809	58805000	122
DERA	1.576	1.368	.030	9.990	121
TRPO	1239315.94	2454763.63	-4551000	16581000	122
NPXEX	729612.008	1667291.89	-5421000	10114000	122
DIREQ	37.961	22.639	.080	83.800	122
FSPER	17.951	27.296	.000	99.999	109
EMPL	320	657	.000	6597	119
LOB	1.490	1.229	1.000	9.950	88
GDI	1.376	.629	1.000	4.340	108
TOT8	.262	.081	.098	.535	122
DNPXEX	.398	4.467	-25.022	35.839	120
RTA	.097	.153	-.610	.519	122
RTS	-.030	.539	-4.167	.403	122
RTE	.223	.642	-3.538	4.461	122
RTALCL	.221	.437	-.946	3.709	122

The above symbols represenet the following accounting figures:

DEPS: GROWTH IN EARNINGS PER SHARE
DTRPO: GROWTH IN TRADING PROFIT
TS: TOTAL TURNOVER
TA: TOTAL ASSETS
TALCL: TOTAL ASSETS LESS CURRENT LIABILITIES
TE: TOTAL EQUITY
DERA: DEBIT TO EQUITY RATIO
TRPO: TRADING PROFIT
NPXEX: NET PROFIT AFTER EXTRAORDINARY ITEMS
DIREQ: DIRECTORS EQUITY
FSPER: PERCENTAGE OF FOREIGN TURNOVER
EMPL: NUMBER OF EMPLOYEES
LOB: LINE OF BUSINESS DIVERSIFICATION INDEX
GDI: GEOGRAPHICAL DIVERSIFICATION INDEX
TOT8: VOLUNTARY DISCLOSURE SCORE
DNPXEX: GROWTH IN PROFIT AFTER EXTRAORDINARY ITEMS
RTA: RETURN ON TOTAL ASSETS
RTS: RETURN ON TURNOVER
RTE: RETURN ON TOTAL EQUITY
RTALCL: RETURN ON TOTAL ASSETS LESS CURRENT LIABILITIES

APPENDIX 8

Extent of Disclosure

1. HISTORY OF THE COMPANY

	Frequency	Percent
NOT DISCLOSED	107	87.7
DISCLOSED	15	12.3
TOTAL	122	100.0

2. ORGANISATIONAL STRUCTURE

	Frequency	Percent
NOT DISCLOSED	84	68.9
DISCLOSED	38	31.1
TOTAL	122	100.0

3. FUTURE PLANS AND STRATEGIES

	Frequency	Percent
NOT DISCLOSED	19	15.6
DISCLOSED	103	84.4
TOTAL	122	100.0

4. FUTURE PROSPECTS OF THE ECONOMY, INDUSTRY, OR COMPANY

	Frequency	Percent
NOT DISCLOSED	15	12.3
DISCLOSED	107	87.7
TOTAL	122	100.0

5. FUTURE PROSPECTS OF THE ECONOMY

	Frequency	Percent
NOT DISCLOSED	103	96.3
DISCLOSED	4	3.7
TOTAL	107	100.0

6. FUTURE PROSPECTS OF THE INDUSTRY

	Frequency	Percent
NOT DISCLOSED	83	77.6
DISCLOSED	24	22.4
TOTAL	107	100.0

7. FUTURE PROSPECTS OF THE COMPANY

	Frequency	Percent
NOT DISCLOSED	8	7.5
DISCLOSED	99	92.5
TOTAL	107	100.0

8. FUTURE PROSPECTS IN QUANTITATIVE TERMS

	Frequency	Percent
NOT DISCLOSED	99	92.5
DISCLOSED	8	7.5
TOTAL	107	100.0

9. COMPANY'S ORDER BOOK

	Frequency	Percent
NOT DISCLOSED	99	81.1
DISCLOSED	23	18.9
TOTAL	122	100.0

10. MAJOR CUSTOMERS AND TARGET MARKETS

	Frequency	Percent
NOT DISCLOSED	48	39.3
DISCLOSED	74	60.7
TOTAL	122	100.0

11. REVIEW OF LAST YEAR TAKEOVER ACTIVITIES

	Frequency	Percent
NOT DISCLOSED	88	72.1
DISCLOSED	34	27.9
TOTAL	122	100.0

12. EFFECT OF LAST YEAR TAKEOVERS ON PROFIT

	Frequency	Percent
NOT DISCLOSED	107	87.7
DISCLOSED	15	12.3
TOTAL	122	100.0

13. TRAINING & INDUSTRIAL RELATIONS

	Frequency	Percent
NOT DISCLOSED	99	81.1
DISCLOSED	23	18.9
TOTAL	122	100.0

14. NUMBER OF EMPLOYEES LESS THAN 250

	Frequency	Percent
MORE THAN 250 EMPLOYEE	63	51.6
LESS THAN 250 EMPLOYEE	59	48.4
TOTAL	122	100.0

15. DISABLED AND PENSIONS CONDITIONS FOR COMPANIES WITH LESS THAN 250 EMPLOYEES

	Frequency	Percent
NOT DISCLOSED	58	98.3
DISCLOSED	1	1.7
TOTAL	59	100.0

16. DISCLOSING LOB INFORMATION

	Frequency	Percent
NEITHER DISCOLSING NOR REASONS FOR NOT DISCLOSING	30	24.6
DISCLOSED INFORMATION	92	75.4
TOTAL	122	100.0

17. WHY NOT PROVIDING LOB INFORMATION

	Frequency	Percent
INAPPLICABALE	43	91.5
OTHER REASONS GIVEN	4	8.5
TOTAL	47	100.0

18. DISCLOSING LOB DETAIL INFORMATION

	Frequency	Percent
NOT DISCLOSED	42	45.7
DISCLOSED	50	54.3
TOTAL	92	100.0

19. TURNOVER BY LINE OF BUSINESS

	Frequency	Percent
NOT DISCLOSED	5	10.0
DISCLOSED	45	90.0
TOTAL	50	100.0

20. PROFIT BY LINE OF BUSINESS

	Frequency	Percent
NOT DISCLOSED	22	44.0
DISCLOSED	28	56.0
TOTAL	50	100.0

21. ASSETS BY LINE OF BUSINESS

	Frequency	Percent
NOT DISCLOSED	50	100.0
DISCLOSED	0	0.0
TOTAL	50	100.0

22. CAPITAL EXPENDITURES BY LOB

	Frequency	Percent
NOT DISCLOSED	49	98.0
DISCLOSED	1	2.0
TOTAL	50	100.0

23. DISCLOSING GEOGRAPHICAL INFORMATION

	Frequency	Percent
NEITHER DISCLOSING NOR REASONS FOR NOT DISCLOSING	11	9.0
DISCLOSED INFORMATION OR REASONS	111	91.0
TOTAL	122	100.0

24. REASONS FOR NOT PROVIDING GEOGRAPHICAL INFORMATION

	Frequency	Percent
OTHER REASONS GIVEN	3	7.5
INAPPLICABALE	37	92.5
TOTAL	40	100.0

25. TURNOVER BY GEOGRAPHICAL AREA

	Frequency	Percent
NOT DISCLOSED	1	1.4
DISCLOSED	70	98.6
TOTAL	71	100.0

26. PROFIT BY GEOGRAPHICAL AREA

	Frequency	Percent
NOT DISCLOSED	56	78.9
DISCLOSED	15	21.1
TOTAL	71	100.0

27. CAPITAL EXPENDITURE BY GEOGRAPHICAL AREA

	Frequency	Percent
NOT DISCLOSED	69	97.2
DISCLOSED	2	2.8
TOTAL	71	100.0

28. ASSETS BY GEOGRAPHICAL AREA

	Frequency	Percent
NOT DISCLOSED	69	97.2
DISCLOSED	2	2.8
TOTAL	71	100.0

29. APPLICABILITY OF R&D

	Frequency	Percent
APPLICABLE	40	80.0
INAPPLICABALE	10	20.0
TOTAL	50	100.0

30. NARRATIVE INFORMATION ON R&D ACTIVITIES

	Frequency	Percent
NOT DISCLOSED	1	2.5
DISCLOSED	39	97.5
TOTAL	40	100.0

31. LAST YEAR'S R&D EXPENDITURES

	Frequency	Percent
NOT DISCLOSED	16	40.0
DISCLOSED	24	60.0
TOTAL	40	100.0

32. R&D FUTURE COMMITMENTS

	Frequency	Percent
NOT DISCLOSED	38	95.0
DISCLOSED	2	5.0
TOTAL	40	100.0

33. BREAKDOWN OF ASSETS IN MORE DETAIL

	Frequency	Percent
NOT DISCLOSED	55	45.1
DISCLOSED	67	54.9
TOTAL	122	100.0

34. MAJOR PROPERTIES AND INVESTMENTS

	Frequency	Percent
NOT DISCLOSED	65	53.3
DISCLOSED	57	46.7
TOTAL	122	100.0

35. CAPITAL EXP PROJECTS IN PROGRESS

	Frequency	Percent
NOT DISCLOSED	68	55.7
DISCLOSED	54	44.3
TOTAL	122	100.0

36. FUTURE CAPITAL EXPENDITURES

	Frequency	Percent
NOT DISCLOSED	84	68.9
DISCLOSED	38	31.1
TOTAL	122	100.0

37. DESCRIPTION OF PRODUCTS AND SERVICES

	Frequency	Percent
NOT DISCLOSED	41	33.6
DISCLOSED	81	66.4
TOTAL	122	100.0

38. DESCRIPTION OF PATENTS AND RIGHTS

	Frequency	Percent
NOT DISCLOSED	97	79.5
DISCLOSED	25	20.5
TOTAL	122	100.0

39. NET REALISABLE VALUE OF STOCK

	Frequency	Percent
NOT DISCLOSED	111	91.0
DISCLOSED	11	9.0
TOTAL	122	100.0

40. DATA RELATING TO LAST 3-5 YEARS

	Frequency	Percent
NOT DISCLOSED	64	52.5
DISCLOSED	58	47.5
TOTAL	122	100.0

41. VALUE ADDED INFORMATION

	Frequency	Percent
NOT DISCLOSED	122	100.0
TOTAL	122	100.0

42. DISPUTES AND DIFFICULTIES

	Frequency	Percent
NOT DISCLOSED	121	99.2
DISCLOSED	1	0.8
TOTAL	122	100.0

43. CCA DATA

	Frequency	Percent
NOT DISCLOSED	120	98.4
DISCLOSED	2	1.6
TOTAL	122	100.0

44. REASONS FOR NOT DISCLOSING CCA DATA

	Frequency	Percent
NO REASONS GIVEN	115	95.8
REASONS GIVEN	5	4.2
TOTAL	120	100.0

45. PRODUCTION AND LICENCESES INFORMATION (FOR OIL & GAS COMPANIES)

	Frequency	Percent
NOT DISCLOSED	1	12.5
DISCLOSED	7	87.5
TOTAL	8	100.0

46. FOREIGN CURRENCY GAINS OR LOSSES

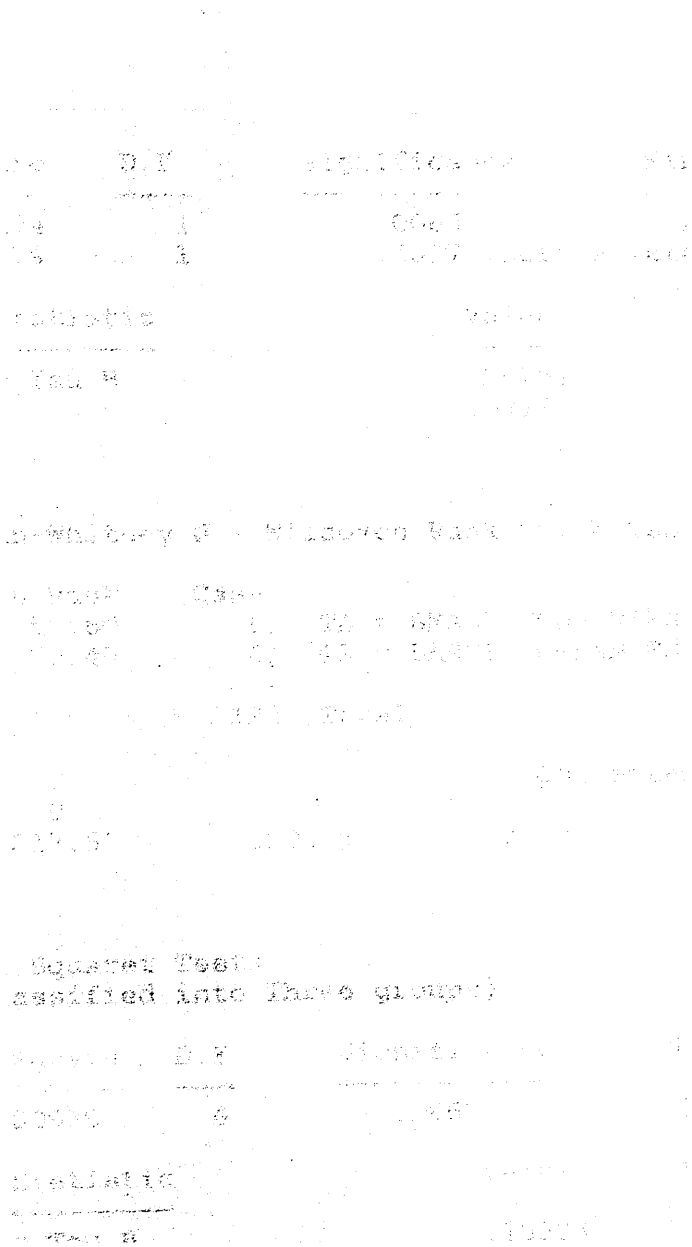
	Frequency	Percent
NOT DISCLOSED	92	75.4
DISCLOSED	30	24.6
TOTAL	122	100.0

47. FOREIGN EXCHANGE IMPACT

	Frequency	Percent
NOT DISCLOSED	103	84.4
DISCLOSED	19	15.6
TOTAL	122	100.0

48. FOREIGN ASSETS AND THIER LOCATIONS

	Frequency	Percent
NOT DISCLOSED	99	81.1
DISCLOSED	23	18.9
TOTAL	122	100.0



APPENDIX 9

The Non-Parametric Statistics

1 SIZE

1.1 TOTAL ASSETS (TA)

1.1.1 Chi Squaret Tests (classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
7.39494	1	.0065	29.000
8.41379	1	.0037 (Before Yates Correction)	

Statistic	Value	Significance
Kendall's Tau B	.26261	.0019
Gamma	.49194	

1.1.2 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
52.60	61	TA = SMALL COMPANIES
70.40	61	TA = LARGE COMPANIES
	122	Total

		Corrected for Ties	
U	W	Z	2-tailed P
1317.5	3208.5	-2.7805	.0054

1.1.3 Chi Squaret Tests (classified into Three groups)

Chi-Square	D.F.	Significance	Min E.F.
5.00939	4	.2863	13.115

Statistic	Value	Significance
Kendall's Tau B	.15523	.0274
Gamma	.23054	

1.1.4 Kruskal–Wallis 1–way ANOVA

Mean Rank	Cases	
50.28	40	TA = SMALL
64.65	41	TA = MEDIEUM
69.30	41	TA = LARGE
	122	Total

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	6.3522	.0417	6.3526	.0417

1.2 TOTAL TURNOVER (TS)

1.2.1 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
55.85	61	TS = SMALL COMPANIES
67.15	61	TS = LARGE COMPANIES
	122	Total

		Corrected for Ties	
U	W	Z	2-tailed P
1516.0	3407.0	-1.7640	.0777

1.2.2 Chi Square Tests
(classified into two groups)

Chi–Square	D.F.	Significance	Min E.F.
2.66218	1	.1028	29.000
3.28664	1	.0698 (Before Yates Correction)	

Statistic	Value	Significance
Kendall´s Tau B	.16413	.0355
Gamma	.32004	

1.2.3 Chi Squaret Tests
(classified into Three groups)

Chi-Square	D.F.	Significance	Min E.F.
1.68211	4	.7940	13.115

Statistic	Value	Significance
Kendall´s Tau B	.04395	.2933
Gamma	.06570	

1.2.4 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases		
55.72	40	TS = 1	SMALL
65.94	41	TS = 2	MEDIEUM
62.70	41	TS = 3	LARGE
	122	Total	

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	1.7597	.4148	1.7598	.4148

1.3 NUMBER OF EMPLOYEES (EMPL)

1.3.1 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
54.21	63	EMPL = SMALL COMPANIES
69.29	59	EMPL = LARGE COMPANIES
	122	Total

		Corrected for Ties	
U	W	Z	2-tailed P
1399.0	4088.0	-2.3542	.0186

1.3.2 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases	
51.33	43	EMPL = SMALL COMPANIES
61.60	39	EMPL = MEDIUM COMPANIES
72.34	40	EMPL = LARGE COMPANIES
	122	Total

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	7.3169	.0258	7.3173	.0258

1.3.3 Chi Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
7.54463	4	.1098	12.787

Statistic	Value	Significance
Kendall's Tau B	.14198	.0395
Gamma	.20977	

1.3.4 Chi Square Tests
(classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
5.64486	1	.0175	28.049
6.53968	1	.0105 (Before Yates Correction)	

Statistic	Value	Significance
Kendall´s Tau B	.23153	.0054
Gamma	.44057	

1.4 TOTAL EQUITY (TE)

1.4.1 Chi Squaret Tests
(classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
3.97683	1	.0461	29.000
4.73276	1	.0296 (Before Yates Correction)	

Statistic	Value	Significance
Kendall´s Tau B	.19696	.0151
Gamma	.37967	

1.4.2 Chi Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
2.77600	4	.5960	13.115

Statistic	Value	Significance
Kendall´s Tau B	.12156	.0663
Gamma	.18135	

1.4.3 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
56.57	61	TE = 1
66.43	61	TE = 2
	122	Total

		Corrected for Ties	
U	W	Z	2-tailed P
1560.0	3451.0	-1.5387	.1239

1.4.4 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases		
54.96	40	TE = 1	SMALL
60.66	41	TE = 2	MEDIEUM
68.72	41	TE = 3	LARGE
	122	Total	

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	3.0992	.2123	3.0994	.2123

1.5 TOTAL ASSETS LESS CURRENT LIABILITIES (TALCL)

1.5.1 Chi Squaret Tests
(classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
7.39494	1	.0065	29.000
8.41379	1	.0037 (Before Yates Correction)	

Statistic	Value	Significance
Kendall´s Tau B	.26261	.0019
Gamma	.49194	

1.5.2 Chi Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
2.61429	4	.6243	13.115

Statistic	Value	Significance
Kendall´s Tau B	.11128	.0843
Gamma	.16606	

1.5.3 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases		
53.98	61	TALCL = 1	
69.02	61	TALCL = 2	
	122	Total	

		Corrected for Ties	
U	W	Z	2-tailed P
1401.5	3292.5	-2.3504	.0188

1.5.4 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases		
54.50	40	TALCL = 1	SMALL
61.24	41	TALCL = 2	MEDIEUM
68.59	41	TALCL = 3	LARGE
	122	Total	

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	3.2155	.2003	3.2157	.2003

2. GEARING

2.1 DEBT TO EQUITY RATIO (DERA)

2.1.1 Chi-Square Tests
(classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
.00000	1	1.0000	28.281
.01046	1	.9185 (Before Yates Correction)	

Statistic	Value	Significance
Kendall´s Tau B	.00930	.4594
Gamma	.01862	

2.1.2 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
59.86	62	DERA = 1.00
62.19	59	DERA = 2.00
	121	Total

		Corrected for Ties	
U	W	Z	2-tailed P
1758.5	3669.5	-.3656	.7147

2.1.3 Chi Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
3.83961	4	.4281	12.893

Statistic	Value	Significance
Kendall´s Tau B	.04591	.2858
Gamma	.06833	

2.1.4 Kruskal–Wallis 1–way ANOVA

Mean Rank	Cases	
56.91	41	DERA= 1
58.97	40	DERA= 2
67.21	40	DERA= 3
	121	Total

			Corrected for Ties	
CASES	Chi–Square	Significance	Chi–Square	Significance
121	1.9446	.3782	1.9447	.3782

2.2 DEBT TO ASSETS RATIO

2.2.1 Chi–Square Tests
(classified into two groups)

Chi–Square	D.F.	Significance	Min E.F.
.00000	1	1.0000	29.000

Statistic	Value	Significance
Kendall's Tau B	.00000	.5000
Gamma	.00000	

2.2.2 Mann–Whitney U – Wilcoxon Rank Sum W Test

Mean Rank	Cases	
59.64	61	DEAST = 1.00
63.36	61	DEAST = 2.00
	122	Total

		Corrected for Ties	
U	W	Z	2–tailed P
1747.0	3638.0	–.5812	.5611

3 PROFITABILITY

3.1 RETURN ON TOTAL ASSETS (RTA)

3.1.1 Chi–Square Tests
(classified into two groups)

Chi–Square	D.F.	Significance	Min E.F.
.00000	1	1.0000	24.500

Statistic	Value	Significance
Kendall's Tau B	–.01962	.4218
Gamma	–.03926	

3.1.2 Mann–Whitney U – Wilcoxon Rank Sum W Test

Mean Rank	Cases	
50.89	49	RTA = 1.00
52.07	53	RTA = 2.00
	102	Total

U	W	Corrected for Ties Z	2–tailed P
1268.5	2493.5	–.2009	.8407

3.1.3 Chi Square Tests
(classified into three groups)

Chi–Square	D.F.	Significance	Min E.F.
6.76393	4	.1489	9.118

Statistic	Value	Significance
Kendall´s Tau B	–.16459	.0315
Gamma	–.24368	

3.1.4 Kruskal–Wallis 1–way ANOVA

Mean Rank	Cases	
60.08	31	RTA = 1
48.46	37	RTA = 2
46.99	34	RTA = 3
	102	Total

CASES	Chi–Square	Significance	Corrected for Ties Chi–Square	Significance
102	3.7893	.1504	4.2744	.1180

3.2. RETURN ON TURNOVER (RTS)

3.2.1 Chi–Square Tests
(classified into two groups)7

Chi–Square	D.F.	Significance	Min E.F.
1.41176	1	.2348	25.500

Statistic	Value	Significance
Kendall´s Tau B	–.13725	.0839
Gamma	–.26943	

3.2.2 Mann–Whitney U – Wilcoxon Rank Sum W Test

Mean Rank	Cases	
55.43	51	RTS = 1.00
47.57	51	RTS = 2.00
	102	Total

U	W	Corrected for Ties Z	Corrected for Ties 2-tailed P
1100.0	2827.0	−1.3419	.1796

3.2.3 Chi Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
1.56401	4	.8152	9.118

Statistic	Value	Significance
Kendall's Tau B	−.01535	.4312
Gamma	−.02305	

3.2.4 Kruskal–Wallis 1–way ANOVA
(Two Groups)

Mean Rank	Cases	
55.43	51	RTS = LOW PROFITABILITY
47.57	51	RTS = HIGH PROFITABILITY
	102	Total

U	W	Corrected for Ties Z	Corrected for Ties 2-tailed P
1100.0	2827.0	−1.3419	.1796

3.2.5 Kruskal–Wallis 1–way ANOVA

Mean Rank	Cases	
52.19	31	RTS = 1
51.38	39	RTS = 2
50.97	32	RTS = 3
	102	Total

CASES	Chi-Square	Significance	Corrected for Ties Chi-Square	Corrected for Ties Significance
102	.0279	.9861	.0315	.9844

4 LINE OF BUSINESS DIVERSIFICATION INDEX (LOB)

4.1 Chi-Square Tests
(classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
.37977	1	.5377	8.680

Statistic	Value	Significance
Kendall's Tau B	-.10131	.1917
Gamma	-.23077	

4.2 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
42.57	21	LOB = 2.000
36.22	54	LOB = 3.000
	75	Total

		Corrected for Ties	
U	W	Z	2-tailed P
471.0	894.0	-1.1328	.2573

4.3 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases		
52.86	47	LOB =	1
74.36	21	LOB =	2
64.02	54	LOB =	3
	122	Total	

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	5.8545	.0535	5.8549	.0535

4.4 Chi-Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
3.75656	2	.1529	9.984

Statistic	Value	Significance
Kendall's Tau B	.10628	.1097
Gamma	.18777	

5. GEOGRAPHICAL DIVERSIFICATION

5.1 GEOGRAPHICAL DIVERSIFICATION INDEX

5.1.1 Chi-Square Tests
(classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
.00000	1	1.0000	14.167

Statistic	Value	Significance
Kendall´s Tau B	-.00820	.4702
Gamma	-.01695	

5.1.2 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
41.99	35	GDI = 2.000
42.87	49	GDI = 3.000
	84	Total

		Corrected for Ties	
U	W	Z	2-tailed P
839.5	1469.5	-.1633	.8703

5.1.3 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases		
48.82	38	GDI =	1
66.59	35	GDI =	2
67.70	49	GDI =	3
	122	Total	

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	7.1212	.0284	7.1216	.0284

5.1.4 Chi-Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
5.40263	2	.0671	16.639

Statistic	Value	Significance
Kendall´s Tau B	.16636	.0263
Gamma	.28377	

5.2 PERCENTAGE OF FOREIGN TURNOVER

5.2.1 Kruskal–Wallis 1–way ANOVA
(three groups, n=122)

Mean Rank	Cases			
44.59	37	FSPER =	1	NO FOREIGN TURNOVER
60.38	48	FSPER =	2	WITH UP TO 17%
79.86	37	FSPER =	3	WITH MORE THAN 17%
	122	Total		

			Corrected for Ties	
CASES	Chi–Square	Significance	Chi–Square	Significance
122	18.4838	.0001	18.4849	.0001

5.2.2 Chi–Square Tests
(three groups, n=122)

Chi–Square	D.F.	Significance	Min E.F.
12.19613	2	.0022	17.590

Statistic	Value	Significance
Kendall´s Tau B	.29832	.0003
Gamma	.49669	

5.2.3 Mann–Whitney U – Wilcoxon Rank Sum W Test
(two groups; 2,3; n=85)

Mean Rank	Cases			
36.92	48	FSPER =	2	WITH UP TO 17%
50.89	37	FSPER =	3	WITH MORE THAN 17%
	85	Total		

		Corrected for Ties	
U	W	Z	2–tailed P
596.0	1883.0	–2.5884	.0096

5.2.4 Chi–Square Tests
(two gropus; 2,3; n=85)

Chi–Square	D.F.	Significance	Min E.F.
3.00974	1	.0828	14.365

Statistic	Value	Significance
Kendall´s Tau B	.21252	.0257
Gamma	.42595	

5.2.5 Chi Square Tests
(two groups, n=122)

Chi-Square	D.F.	Significance	Min E.F.
8.24737	2	.0162	8.197

Statistic	Value	Significance
Kendall's Tau B	.23644	.0029
Gamma	.49043	

5.2.6 Mann-Whitney U - Wilcoxon Rank Sum W Test
(two groups, n=122)

Mean Rank	Cases	
56.22	97	FSPER = 1.000
82.00	25	FSPER = 2.000
	122	Total

		Corrected for Ties	
U	W	Z	2-tailed P
700.0	2050.0	-3.2508	.0012

6 DIRECTORS EQUITY (DIREQ)

6.1 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
69.43	61	DIREQ = SMALL SHARE IN THE EQUITY
53.57	61	DIREQ = LARGE SHARE IN THE EQUITY
	122	Total

		Corrected for Ties	
U	W	Z	2-tailed P
1376.5	4235.5	-2.4784	.0132

6.2 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases	
69.60	39	DIREQ = 1
59.94	41	DIREQ = 2
55.50	42	DIREQ = 3
	122	Total

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	3.3365	.1886	3.3367	.1886

6.3 Chi-Square Tests
(classified into two groups)

Chi-Square	D.F.	Significance	Min E.F.
7.39494	1	.0065	29.000
8.41379	1	.0037 (Before Yates Correction)	

Statistic	Value	Significance
Kendall's Tau B	-.26261	.0019
Gamma	-.49194	

6.4 Chi-Square Tests
(classified into three groups)

Chi-Square	D.F.	Significance	Min E.F.
6.14154	4	.1888	12.787

Statistic	Value	Significance
Kendall's Tau B	-.17502	.0152
Gamma	-.25941	

7 SUBSTANTIAL SHAREHOLDINGS-HOLDING MORE THAN 5% (MORE5)

7.1 Chi Square Tests
(classified into five groups)

Chi-Square	D.F.	Significance	Min E.F.
8.28342	8	.4063	3.607

Statistic	Value	Significance
Kendall's Tau B	.10403	.0898
Gamma	.14450	

7.2. Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases	
58.34	40	MORE5 = 0
57.64	28	MORE5 = 1
68.93	27	MORE5 = 2
70.73	11	MORE5 = 3
57.28	16	MORE5 = 4
	122	Total

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	2.8204	.5883	2.8205	.5883

8 EXISTANCE OF EXECUTIVE SHARE OPTION

8.1 Chi Square Tests

Chi-Square	D.F.	Significance	Min E.F.
.02558	2	.9873	17.405

Statistic	Symmetric	With SCORE Dependent
Lambda	.00000	.00000

Statistic	Value	Significance
Cramer's V	.01454	

8.2 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases	
60.59	67	OPTION = 0
61.51	54	OPTION = 1
	121	Total

		Corrected for Ties	
U	W	Z	2-tailed P
1781.5	3321.5	-.1434	.8860

9 THE AUDITING FIRM

9.1 Chi-Square Tests

Chi-Square	D.F.	Significance	Min E.F.
.25139	2	.8819	15.738

Statistic	Symmetric	With SCORE Dependent
Lambda	.00781	.01250

Statistic	Value	Significance
Cramer's V	.04539	

9.2 Mann–Whitney U – Wilcoxon Rank Sum W Test

Mean Rank	Cases	
60.59	48	FIRM = 0.0
62.09	74	FIRM = 1.00
	122	Total

U	W	Corrected for Ties Z	2–tailed P
1732.5	2908.5	–.2280	.8197

9.3 Kruskal–Wallis 1–way ANOVA

Mean Rank	Cases		
47.96	13	FIRM = 1	DELOITTE HASKENS & S
79.72	9	FIRM = 2	ARTHER ANDERSON
75.67	6	FIRM = 3	ARTHUR YOUNG
47.42	12	FIRM = 4	ERNST & WHINNEY
65.90	15	FIRM = 5	PEAT MARWICK McLINTO
67.00	9	FIRM = 6	TOUCH ROSS
73.10	5	FIRM = 7	PRICE WATERHOUSE
54.70	5	FIRM = 8	COOPERS LYBRAND
60.59	48	FIRM = 9	OTHERS
	122	Total	

CASES	Chi–Square	Significance	Corrected for Ties Chi–Square	Significance
122	8.3659	.3986	8.3664	.3985

10 INDUSTRY SECTOR

Sector	Code	Frequency	Percent
BEERS AND WIENS	10	5	4.1
BUILDING INDUSTRY	11	11	9.0
DRAPERY AND STORES	13	15	12.3
ELECTRICALS	14	41	33.6
FOOD AND GROCERIES	16	9	7.4
LEISURE	20	20	16.4
PAPER AND PRINTING	23	13	10.7
OIL AND GAS	31	8	6.6
	TOTAL	122	100.0

10.1 Chi-Square Tests

Chi-Square	D.F.	Significance	Min E.F.
6.43500	4	.1689	5.170

Statistic	Symmetric	With SCORE Dependent
Lambda	.08491	.19149

Statistic	Value	Significance
Cramer's V	.25367	

10.2 Kruskal-Wallis 1-way ANOVA

Mean Rank	Cases	Code
46.32	11	IND = 11
45.03	15	IND = 13
61.01	41	IND = 14
35.58	20	IND = 20
50.15	13	IND = 23
	100	Total

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
100	11.4393	.0220	11.4402	.0220

10.3 Analysis of Variance

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Grp 4	Grp 2	Grp 1	Grp 5	Grp 3
.2126	Grp 4					
.2421	Grp 2					
.2496	Grp 1					
.2715	Grp 5					
.2974	Grp 3	*				

11 TAX STATUS

11.1 Chi Square Tests

Chi-Square	D.F.	Significance	Min E.F.
5.49216	2	.0642	13.716

Statistic	Symmetric	With SCORE Dependent
Lambda	.07563	.10526

Statistic	Value	Significance
Cramer's V	.21759	

11.2 Mann-Whitney U - Wilcoxon Rank Sum W Test

Mean Rank	Cases		
67.81	43	TAX = 0	NOT A CLOSE COMPANY
53.01	73	TAX = 1	CLOSE COMPANY
	116	Total	

		Corrected for Ties	
U	W	Z	2-tailed P
1169.0	2916.0	-2.2894	.0221

13 NO OF NON-EXECUTIVE DIRECTORS

13.1 Kruskal-Wallis 1-way ANOVA

13.1.1 Five Groups

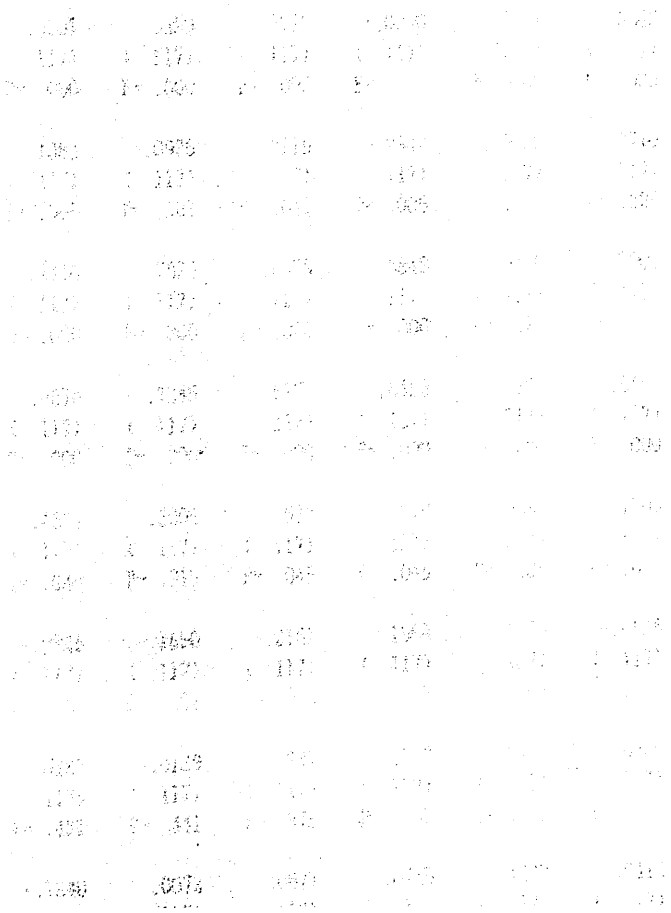
Mean Rank	Cases	
57.84	77	NOEX = 0
62.78	25	NOEX = 1
69.40	10	NOEX = 2
78.92	6	NOEX = 3
78.13	4	NOEX = 4
	122	Total

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	3.6973	.4485	3.6975	.4485

13.1.2 Four Groups

Mean Rank	Cases	
57.84	77	NOEX = 0
62.78	25	NOEX = 1
69.40	10	NOEX = 2
78.60	10	NOEX = 3
	122	Total

			Corrected for Ties	
CASES	Chi-Square	Significance	Chi-Square	Significance
122	3.6961	.2962	3.6963	.2962



APPENDIX 10

The Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Total Turnover	1.0000 (117) P= .	.7185 (117) P= .000	.5142 (117) P= .000	.5281 (117) P= .000	.1384 (117) P= .068	.7410 (117) P= .000	.6670 (117) P= .000	.1623 (117) P= .040
(2) Total Assets	.7185 (117) P= .000	1.0000 (117) P= .	.9443 (117) P= .000	.9359 (117) P= .000	-.0925 (117) P= .161	.7826 (117) P= .000	.7245 (117) P= .000	.2006 (117) P= .015
(3) Assets less Current Liabilities	.5142 (117) P= .000	.9443 (117) P= .000	1.0000 (117) P= .	.9770 (117) P= .000	-.2119 (117) P= .011	.6579 (117) P= .000	.6257 (117) P= .000	.1578 (117) P= .045
(4) Total Equity	.5281 (117) P= .000	.9359 (117) P= .000	.9770 (117) P= .000	1.0000 (117) P= .	-.2342 (117) P= .006	.6848 (117) P= .000	.6486 (117) P= .000	.1578 (117) P= .045
(5) Debt to Equity Ratio	.1384 (117) P= .068	-.0925 (117) P= .161	-.2119 (117) P= .011	-.2342 (117) P= .006	1.0000 (117) P= .	-.0710 (117) P= .224	-.0720 (117) P= .220	-.0837 (117) P= .185
(6) Trading Profit	.7410 (117) P= .000	.7826 (117) P= .000	.6579 (117) P= .000	.6848 (117) P= .000	-.0710 (117) P= .224	1.0000 (117) P= .	.9658 (117) P= .000	.1708 (117) P= .033
(7) Net Profit	.6670 (117) P= .000	.7245 (117) P= .000	.6257 (117) P= .000	.6486 (117) P= .000	-.0720 (117) P= .220	.9658 (117) P= .000	1.0000 (117) P= .	.1278 (117) P= .085
(8) Non-Executive Directors	.1623 (117) P= .040	.2006 (117) P= .015	.1578 (117) P= .045	.1578 (117) P= .045	-.0837 (117) P= .185	.1708 (117) P= .033	.1278 (117) P= .085	1.0000 (117) P= .
(9) Directors' Equity	-.0926 (117) P= .160	-.1650 (117) P= .038	-.2161 (117) P= .010	-.1959 (117) P= .017	.2566 (117) P= .003	-.0626 (117) P= .251	-.0618 (117) P= .254	-.1804 (117) P= .026
(10) Option Schemes	.0187 (117) P= .421	-.0139 (117) P= .441	-.0297 (117) P= .375	-.0087 (117) P= .463	.0737 (117) P= .215	.0360 (117) P= .350	.0363 (117) P= .349	.0709 (117) P= .224
(11) Foreign Turnover	-.1540 (117) P= .049	.0072 (117) P= .469	.0671 (117) P= .236	.0745 (117) P= .212	-.1277 (117) P= .085	-.0413 (117) P= .329	-.0294 (117) P= .376	-.0423 (117) P= .325
(12) No of Substantial Shareholding	-.0076 (117) P= .467	.0168 (117) P= .429	.0268 (117) P= .387	.0171 (117) P= .428	-.0441 (117) P= .318	.0104 (117) P= .456	.0172 (117) P= .427	.0614 (117) P= .255

(Coefficient / (Cases) / 1-tailed Significance)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(13) No of Employees	.5225	.5909	.5360	.5669	-.0724	.4779	.4457	.0537
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .000	P= .000	P= .000	P= .000	P= .219	P= .000	P= .000	P= .283
(14) Line of Business Diversification	.0505	.0661	.0912	.1038	-.0262	.0661	.1087	-.1087
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .294	P= .240	P= .164	P= .133	P= .390	P= .239	P= .122	P= .122
(15) Geographical Diversification	.0265	.1256	.1889	.1529	-.1313	.0526	.0506	-.1414
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .388	P= .089	P= .021	P= .050	P= .079	P= .287	P= .294	P= .064
(16) Disclosure Index	.1361	.1508	.1293	.1274	.0482	.0590	.0559	.1142
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .072	P= .052	P= .082	P= .086	P= .303	P= .264	P= .275	P= .110
(17) Debt to Assets Ratio	.1900	-.1216	-.2981	-.3552	.7454	-.0352	-.0586	-.0496
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .020	P= .096	P= .001	P= .000	P= .000	P= .353	P= .265	P= .298
(18) Growth in EPS	.1125	.0477	.0157	.0140	.0784	.2717	.3292	-.0960
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .114	P= .305	P= .433	P= .441	P= .200	P= .002	P= .000	P= .152
(19) Growth in Trading Profit	.1832	.1784	.1344	.1485	.0618	.3645	.4315	-.1127
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .024	P= .027	P= .074	P= .055	P= .254	P= .000	P= .000	P= .113
(20) Growth in Net Profit	.0563	.0704	.0306	.0447	.0218	.1335	.1816	-.0144
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .273	P= .225	P= .372	P= .316	P= .408	P= .076	P= .025	P= .439
(21) Return on Assets	.0892	-.0104	-.0467	-.0222	-.0489	.3859	.4348	-.0326
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .169	P= .456	P= .309	P= .406	P= .300	P= .000	P= .000	P= .364
(22) Return on Turnover	.0958	.0834	.0426	.0380	.0639	.2375	.2688	.0437
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .152	P= .186	P= .324	P= .342	P= .247	P= .005	P= .002	P= .320
(23) Return on Equity	.0817	-.0408	-.0814	-.0691	.4651	.2722	.3166	-.0681
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .191	P= .331	P= .192	P= .230	P= .000	P= .001	P= .000	P= .233
(24) Return on Assets Less Current Liabilities	.0659	-.0626	-.1065	-.0863	.4660	.2565	.2885	-.0849
	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)
	P= .240	P= .251	P= .126	P= .177	P= .000	P= .003	P= .001	P= .181

(Coefficient / (Cases) / 1-tailed Significance)

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) Total Turnover	-.0926 (117) P= .160	.0187 (117) P= .421	-.1540 (117) P= .049	-.0076 (117) P= .467	.5225 (117) P= .000	.0505 (117) P= .294	.0265 (117) P= .388	.1361 (117) P= .072
(2) Total Assets	-.1650 (117) P= .038	-.0139 (117) P= .441	.0072 (117) P= .469	.0168 (117) P= .429	.5909 (117) P= .000	.0661 (117) P= .240	.1256 (117) P= .089	.1508 (117) P= .052
(3) Assets less Current Liabilities	-.2161 (117) P= .010	-.0297 (117) P= .375	.0671 (117) P= .236	.0268 (117) P= .387	.5360 (117) P= .000	.0912 (117) P= .164	.1889 (117) P= .021	.1293 (117) P= .082
(4) Total Equity	-.1959 (117) P= .017	-.0087 (117) P= .463	.0745 (117) P= .212	.0171 (117) P= .428	.5669 (117) P= .000	.1038 (117) P= .133	.1529 (117) P= .050	.1274 (117) P= .086
(5) Debt to Equity Ratio	.2566 (117) P= .003	.0737 (117) P= .215	-.1277 (117) P= .085	-.0441 (117) P= .318	-.0724 (117) P= .219	-.0262 (117) P= .390	-.1313 (117) P= .079	.0482 (117) P= .303
(6) Trading Profit	-.0626 (117) P= .251	.0360 (117) P= .350	-.0413 (117) P= .329	.0104 (117) P= .456	.4779 (117) P= .000	.0661 (117) P= .239	.0526 (117) P= .287	.0590 (117) P= .264
(7) Net Profit	-.0618 (117) P= .254	.0363 (117) P= .349	-.0294 (117) P= .376	.0172 (117) P= .427	.4457 (117) P= .000	.1087 (117) P= .122	.0506 (117) P= .294	.0559 (117) P= .275
(8) Non-Executive Directors	-.1804 (117) P= .026	.0709 (117) P= .224	-.0423 (117) P= .325	.0614 (117) P= .255	.0537 (117) P= .283	-.1087 (117) P= .122	-.1414 (117) P= .064	.1142 (117) P= .110
(9) Directors' Equity	1.0000 (117) P= .	.0343 (117) P= .357	-.0365 (117) P= .348	-.4792 (117) P= .000	-.1444 (117) P= .060	-.0122 (117) P= .448	.0500 (117) P= .296	-.1523 (117) P= .051
(10) Option Schemes	.0343 (117) P= .357	1.0000 (117) P= .	-.1006 (117) P= .140	.0421 (117) P= .326	.0699 (117) P= .227	-.0071 (117) P= .470	-.0129 (117) P= .445	.2845 (117) P= .001
(11) Foreign Turnover	-.0365 (117) P= .348	-.1006 (117) P= .140	1.0000 (117) P= .	.0053 (117) P= .477	-.1011 (117) P= .139	.1630 (117) P= .040	.0194 (117) P= .418	.3483 (117) P= .000
(12) No of Substantial Shareholding	-.4792 (117) P= .000	.0421 (117) P= .326	.0053 (117) P= .477	1.0000 (117) P= .	.0027 (117) P= .489	-.0420 (117) P= .326	-.0710 (117) P= .224	-.0248 (117) P= .395

(Coefficient / (Cases) / 1-tailed Significance)

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(13) No of Employees	-.1444 (117) P= .060	.0699 (117) P= .227	-.1011 (117) P= .139	.0027 (117) P= .489	1.0000 (117) P= .	-.0296 (117) P= .375	-.0275 (117) P= .384	.2747 (117) P= .001
(14) Line of Business Diversification	-.0122 (117) P= .448	-.0071 (117) P= .470	.1630 (117) P= .040	-.0420 (117) P= .326	-.0296 (117) P= .375	1.0000 (117) P= .	.1668 (117) P= .036	.0036 (117) P= .484
(15) Geographical Diversification	.0500 (117) P= .296	-.0129 (117) P= .445	.0194 (117) P= .418	-.0710 (117) P= .224	-.0275 (117) P= .384	.1668 (117) P= .036	1.0000 (117) P= .	-.0835 (117) P= .185
(16) Disclosure Index	-.1523 (117) P= .051	.2845 (117) P= .001	.3483 (117) P= .000	-.0248 (117) P= .395	.2747 (117) P= .001	.0036 (117) P= .484	-.0835 (117) P= .185	1.0000 (117) P= .
(17) Debt to Assets Ratio	.2432 (117) P= .004	.0709 (117) P= .224	-.3259 (117) P= .000	-.0018 (117) P= .492	-.0385 (117) P= .340	-.0677 (117) P= .234	-.1174 (117) P= .104	.0230 (117) P= .403
(18) Growth in EPS	.1082 (117) P= .123	.0285 (117) P= .380	-.0461 (117) P= .311	-.1472 (117) P= .057	.0826 (117) P= .188	.1815 (117) P= .025	.0828 (117) P= .187	-.0690 (117) P= .230
(19) Growth in Trading Profit	.0930 (117) P= .159	.0305 (117) P= .372	-.0420 (117) P= .326	-.1327 (117) P= .077	.2794 (117) P= .001	.1198 (117) P= .099	.0933 (117) P= .159	.0302 (117) P= .373
(20) Growth in Net Profit	.0582 (117) P= .266	-.0628 (117) P= .251	-.0739 (117) P= .214	-.1470 (117) P= .057	.0769 (117) P= .205	-.0042 (117) P= .482	-.0352 (117) P= .353	.0209 (117) P= .412
(21) Return on Assets	.1784 (117) P= .027	.0858 (117) P= .179	-.0806 (117) P= .194	-.1338 (117) P= .075	.0353 (117) P= .353	.0555 (117) P= .276	-.0740 (117) P= .214	-.1069 (117) P= .126
(22) Return on Turnover	.1947 (117) P= .018	.0630 (117) P= .250	-.3738 (117) P= .000	-.0495 (117) P= .298	.0762 (117) P= .207	.0263 (117) P= .389	.0528 (117) P= .286	-.0225 (117) P= .405
(23) Return on Equity	.1877 (117) P= .021	.1123 (117) P= .114	-.1010 (117) P= .139	-.1188 (117) P= .101	.0031 (117) P= .487	.0220 (117) P= .407	-.1281 (117) P= .084	-.0643 (117) P= .246
(24) Return on Assets Less Current Liabilities	.2045 (117) P= .014	.1296 (117) P= .082	-.1149 (117) P= .109	-.1267 (117) P= .087	-.0064 (117) P= .473	-.0012 (117) P= .495	-.1048 (117) P= .130	-.0699 (117) P= .227

(Coefficient / (Cases) / 1-tailed Significance)

	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(1) Total Turnover	.1900 (117) P= .020	.1125 (117) P= .114	.1832 (117) P= .024	.0563 (117) P= .273	.0892 (117) P= .169	.0958 (117) P= .152	.0817 (117) P= .191	.0659 (117) P= .240
(2) Total Assets	-.1216 (117) P= .096	.0477 (117) P= .305	.1784 (117) P= .027	.0704 (117) P= .225	-.0104 (117) P= .456	.0834 (117) P= .186	-.0408 (117) P= .331	-.0626 (117) P= .251
(3) Assets less Current Liabilities	-.2981 (117) P= .001	.0157 (117) P= .433	.1344 (117) P= .074	.0306 (117) P= .372	-.0467 (117) P= .309	.0426 (117) P= .324	-.0814 (117) P= .192	-.1065 (117) P= .126
(4) Total Equity	-.3552 (117) P= .000	.0140 (117) P= .441	.1485 (117) P= .055	.0447 (117) P= .316	-.0222 (117) P= .406	.0380 (117) P= .342	-.0691 (117) P= .230	-.0863 (117) P= .177
(5) Debt to Equity Ratio	.7454 (117) P= .000	.0784 (117) P= .200	.0618 (117) P= .254	.0218 (117) P= .408	-.0489 (117) P= .300	.0639 (117) P= .247	.4651 (117) P= .000	.4660 (117) P= .000
(6) Trading Profit	-.0352 (117) P= .353	.2717 (117) P= .002	.3645 (117) P= .000	.1335 (117) P= .076	.3859 (117) P= .000	.2375 (117) P= .005	.2722 (117) P= .001	.2565 (117) P= .003
(7) Net Profit	-.0586 (117) P= .265	.3292 (117) P= .000	.4315 (117) P= .000	.1816 (117) P= .025	.4348 (117) P= .000	.2688 (117) P= .002	.3166 (117) P= .000	.2885 (117) P= .001
(8) Non-Executive Directors	-.0496 (117) P= .298	-.0960 (117) P= .152	-.1127 (117) P= .113	-.0144 (117) P= .439	-.0326 (117) P= .364	.0437 (117) P= .320	-.0681 (117) P= .233	-.0849 (117) P= .181
(9) Directors' Equity	.2432 (117) P= .004	.1082 (117) P= .123	.0930 (117) P= .159	.0582 (117) P= .266	.1784 (117) P= .027	.1947 (117) P= .018	.1877 (117) P= .021	.2045 (117) P= .014
(10) Option Schemes	.0709 (117) P= .224	.0285 (117) P= .380	.0305 (117) P= .372	-.0628 (117) P= .251	.0858 (117) P= .179	.0630 (117) P= .250	.1123 (117) P= .114	.1296 (117) P= .082
(11) Foreign Turnover	-.3259 (117) P= .000	-.0461 (117) P= .311	-.0420 (117) P= .326	-.0739 (117) P= .214	-.0806 (117) P= .194	-.3738 (117) P= .000	-.1010 (117) P= .139	-.1149 (117) P= .109
(12) No of Substantial Shareholding	-.0018 (117) P= .492	-.1472 (117) P= .057	-.1327 (117) P= .077	-.1470 (117) P= .057	-.1338 (117) P= .075	-.0495 (117) P= .298	-.1188 (117) P= .101	-.1267 (117) P= .087

(Coefficient / (Cases) / 1-tailed Significance)

	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
(13) No of Employees	-.0385 (117) P= .340	.0826 (117) P= .188	.2794 (117) P= .001	.0769 (117) P= .205	.0353 (117) P= .353	.0762 (117) P= .207	.0031 (117) P= .487	-.0064 (117) P= .473
(14) Line of Busi ness Diver- sification	-.0677 (117) P= .234	.1815 (117) P= .025	.1198 (117) P= .099	-.0042 (117) P= .482	.0555 (117) P= .276	.0263 (117) P= .389	.0220 (117) P= .407	-.0012 (117) P= .495
(15) Geographical Diversi- fication	-.1174 (117) P= .104	.0828 (117) P= .187	.0933 (117) P= .159	-.0352 (117) P= .353	-.0740 (117) P= .214	.0528 (117) P= .286	-.1281 (117) P= .084	-.1048 (117) P= .130
(16) Disclosure Index	.0230 (117) P= .403	-.0690 (117) P= .230	.0302 (117) P= .373	.0209 (117) P= .412	-.1069 (117) P= .126	-.0225 (117) P= .405	-.0643 (117) P= .246	-.0699 (117) P= .227
(17) Debt to Assets Ratio	1.0000 (117) P= .	.2611 (117) P= .002	.1932 (117) P= .018	.0983 (117) P= .146	-.0024 (117) P= .490	.2848 (117) P= .001	.1948 (117) P= .018	.2053 (117) P= .013
(18) Growth in EPS	.2611 (117) P= .002	1.0000 (117) P= .	.9064 (117) P= .000	.4207 (117) P= .000	.5534 (117) P= .000	.4760 (117) P= .000	.3864 (117) P= .000	.3924 (117) P= .000
(19) Growth in Trading Profit	.1932 (117) P= .018	.9064 (117) P= .000	1.0000 (117) P= .	.3968 (117) P= .000	.5600 (117) P= .000	.5431 (117) P= .000	.3812 (117) P= .000	.3777 (117) P= .000
(20) Growth in Net Profit	.0983 (117) P= .146	.4207 (117) P= .000	.3968 (117) P= .000	1.0000 (117) P= .	.1902 (117) P= .020	.1849 (117) P= .023	.1337 (117) P= .075	.1329 (117) P= .077
(21) Return on Assets	-.0024 (117) P= .490	.5534 (117) P= .000	.5600 (117) P= .000	.1902 (117) P= .020	1.0000 (117) P= .	.4959 (117) P= .000	.7174 (117) P= .000	.6952 (117) P= .000
(22) Return on Turnover	.2848 (117) P= .001	.4760 (117) P= .000	.5431 (117) P= .000	.1849 (117) P= .023	.4959 (117) P= .000	1.0000 (117) P= .	.2902 (117) P= .001	.2794 (117) P= .001
(23) Return on Equity	.1948 (117) P= .018	.3864 (117) P= .000	.3812 (117) P= .000	.1337 (117) P= .075	.7174 (117) P= .000	.2902 (117) P= .001	1.0000 (117) P= .	.9803 (117) P= .000
(24) Return on Assets Less Current Liabilities	.2053 (117) P= .013	.3924 (117) P= .000	.3777 (117) P= .000	.1329 (117) P= .077	.6952 (117) P= .000	.2794 (117) P= .001	.9803 (117) P= .000	1.0000 (117) P= .

(Coefficient / (Cases) / 1-tailed Significance)

APPENDIX 11

Company Data

Company Name .....

Company Number

USM Date of Entry .....

Year End .....

Industry .....

Total Sales .....

Total Assets .....

Total Assets less Current Liabilities
Total Equity .....

Debt/Equity Ratio ..... *

Trading Profit .....

Net Profit After Tax and Extra-ordinary Items
Extraordinary Items .....

Accountancy Firm .....

Non-Executive Directors .....

Directors Equity ..... *

Executive Share Option .....

Percentage of Foreign Sales..... *

Foreign Sales .....

Tax Status .....

More Than 5% Shareholding .....

No of Employees .....

Line of Business Diversification Index .. *

Geographical Diversification Index *

APPENDIX 12

* * * * MULTIPLE REGRESSION * * * * RESULTS

THE FIRST MODEL

Variable(s) Entered on Step Number

1.. FSPER PERCENTAGE OF FOREIGN TURNOVER

Multiple R	.38004		
R Square	.14443	R Square Change	.14443
Adjusted R Square	.13730	F Change	20.25710
Standard Error	.07549	Signif F Change	.0000

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	.11543	.11543
Residual	120	.68377	.00570

F = 20.25710 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.192235E-03	2.64895E-04	.38004	.38004	.38004	.38004	4.501	.0000
(Constant)	.24160	8.19950E-03					29.465	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
EMPL	.30098	.32322	.98668	3.726	.0003
DIREQ	-.14198	-.15335	.99811	-1.693	.0931
LOB	-.03742	-.04012	.98308	-.438	.6622
DEAST	.16742	.17347	.91857	1.922	.0571
TAX	8.6918E-03	.00928	.97605	.101	.9195
DY1	-2.010E-03	-.00216	.99028	-.024	.9812
DY2	.01036	.01107	.97655	.121	.9041
DY3	-.05220	-.05611	.98868	-.613	.5410
GDI	-.11861	-.12823	.99999	-1.410	.1610
DEPS	-.04756	-.05137	.99792	-.561	.5758
OPTION	.31199	.33548	.98927	3.885	.0002
DY4	.24916	.26467	.96540	2.994	.0033
DY5	-.12920	-.13922	.99337	-1.534	.1278
DY6	-.22852	-.24534	.98616	-2.761	.0067
FIRM	-4.109E-03	-.00444	.99988	-.048	.9614

Variable(s) Entered on Step Number

2.. OPTION EXISTANCE OF EXECUTIVE SHARE OPTION

Multiple R	.49064		
R Square	.24072	R Square Change	.09629
Adjusted R Square	.22796	F Change	15.09205
Standard Error	.07141	Signif F Change	.0002

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	.19238	.09619
Residual	119	.60681	.00510

F = 18.86401 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.293634E-03	2.51945E-04	.41236	.38004	.41014	.42587	5.135	.0000
OPTION	.02755	7.09258E-03	.31199	.26927	.31031	.33548	3.885	.0002
(Constant)	.22564	8.77781E-03					25.706	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
EMPL	.28512	.32456	.97740	3.727	.0003
DIREQ	-.14951	-.17136	.98762	-1.889	.0613
LOB	-.03810	-.04336	.97265	-.471	.6382
DEAST	.14822	.16273	.91235	1.792	.0758
TAX	.03796	.04285	.96273	.466	.6421
DY1	.02385	.02715	.97798	.295	.7685
DY2	.03235	.03660	.96405	.398	.6915
DY3	-.04235	-.04831	.97749	-.525	.6003
GDI	-.11362	-.13037	.98901	-1.428	.1558
DEPS	-.05389	-.06177	.98741	-.672	.5027
DY4	.17260	.18640	.88553	2.061	.0415
DY5	-.13034	-.14909	.98283	-1.638	.1041
DY6	-.19430	-.21988	.97239	-2.448	.0158
FIRM	-.05000	-.05677	.96861	-.618	.5380

Variable(s) Entered on Step Number

3.. EMPL NO OF EMPLOYEES

Multiple R	.56631		
R Square	.32070	R Square Change	.07998
Adjusted R Square	.30343	F Change	13.89351
Standard Error	.06783	Signif F Change	.0003

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	.25631	.08544
Residual	118	.54289	.00460

F = 18.56977 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.391945E-03	2.40763E-04	.44370	.38004	.43865	.46982	5.781	.0000
OPTION	.02621	6.74660E-03	.29680	.26927	.29478	.33677	3.885	.0002
EMPL	3.561272E-05	9.55431E-06	.28512	.25310	.28281	.32456	3.727	.0003
(Constant)	.21353	8.94782E-03					23.864	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DIREQ	-.11594	-.13940	.96851	-1.523	.1305
LOB	-.03188	-.03835	.96174	-.415	.6788
DEAST	.16521	.19146	.89906	2.110	.0370
TAX	.03589	.04284	.95172	.464	.6437
DY1	9.3197E-03	.01120	.96746	.121	.9038
DY2	.03578	.04279	.95238	.463	.6440
DY3	-.04439	-.05352	.96606	-.580	.5632
GDI	-.10235	-.12407	.97739	-1.352	.1788
DEPS	-.07520	-.09088	.97619	-.987	.3256
DY4	.21011	.23829	.87371	2.654	.0091
DY5	-.11922	-.14405	.97041	-1.575	.1180
DY6	-.18159	-.21704	.95982	-2.405	.0177
FIRM	-.01236	-.01470	.96183	-.159	.8739

Variable(s) Entered on Step Number

4.. DY4

Multiple R	.59940		
R Square	.35928	R Square Change	.03857
Adjusted R Square	.33737	F Change	7.04354
Standard Error	.06616	Signif F Change	.0091

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	4	.28713	.07178
Residual	117	.51206	.00438

F = 16.40152 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.257864E-03	2.40197E-04	.40096	.38004	.38753	.43576	5.237	.0000
OPTION	.02083	6.88548E-03	.23587	.26927	.22388	.26935	3.025	.0031
EMPL	3.848851E-05	9.38144E-06	.30814	.25310	.30360	.35464	4.103	.0001
DY4	.03600	.01357	.21011	.31123	.19640	.23829	2.654	.0091
(Constant)	.20561	9.22381E-03					22.291	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DIREQ	-.12826	-.15849	.87059	-1.729	.0865
LOB	-.03524	-.04364	.87346	-.470	.6389
DEAST	.15674	.18687	.85806	2.049	.0427
TAX	.05388	.06596	.86695	.712	.4779
DY1	.03111	.03827	.86351	.413	.6807
DY2	.07698	.09303	.84135	1.006	.3164
DY3	6.4338E-03	.00772	.81688	.083	.9338
GDI	-.11026	-.13751	.87236	-1.495	.1376
DEPS	-.09859	-.12190	.86269	-1.323	.1885
DY5	-.08222	-.10012	.83694	-1.084	.2807
DY6	-.13545	-.15964	.80141	-1.742	.0842
FIRM	-.01642	-.02011	.87335	-.217	.8289

Variable(s) Entered on Step Number

5.. DEAST DEBT TO TOTAL ASSETS RATIO

Multiple R	.61778		
R Square	.38165	R Square Change	.02237
Adjusted R Square	.35500	F Change	4.19712
Standard Error	.06527	Signif F Change	.0427

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	5	.30501	.06100
Residual	116	.49418	.00426

F = 14.31919 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.402441E-03	2.47266E-04	.44704	.38004	.41410	.46595	5.672	.0000
OPTION	.02015	6.80136E-03	.22819	.26927	.21633	.26525	2.963	.0037
EMPL	3.944723E-05	9.26765E-06	.31582	.25310	.31077	.36754	4.256	.0000
DY4	.03483	.01340	.20330	.31123	.18986	.23469	2.600	.0105
DEAST	.06503	.03174	.15674	.04534	.14958	.18687	2.049	.0427
(Constant)	.16934	.01991					8.507	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DIREQ	-.16766	-.20615	.85806	-2.259	.0258
LOB	-.03542	-.04464	.84658	-.479	.6327
TAX	.10212	.12260	.81801	1.325	.1879
DY1	.08902	.10558	.81690	1.139	.2573
DY2	.05710	.06960	.83742	.748	.4559
DY3	-5.093E-03	-.00621	.81393	-.067	.9470
GDI	-.08551	-.10668	.85456	-1.151	.2523
DEPS	-.13677	-.16823	.85805	-1.830	.0698
DY5	-.08518	-.10556	.83520	-1.138	.2573
DY6	-.13834	-.16594	.79972	-1.805	.0738
FIRM	-.02277	-.02837	.85776	-.304	.7614

Variable(s) Entered on Step Number

6.. DIREQ DIRECTORS EQUITY

Multiple R	.63869		
R Square	.40793	R Square Change	.02628
Adjusted R Square	.37704	F Change	5.10402
Standard Error	.06415	Signif F Change	.0258

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	6	.32601	.05434
Residual	115	.47318	.00411

F = 13.20550 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.400649E-03	2.43006E-04	.44647	.38004	.41357	.47343	5.764	.0000
OPTION	.02018	6.68416E-03	.22846	.26927	.21659	.27095	3.019	.0031
EMPL	3.718297E-05	9.16291E-06	.29769	.25310	.29117	.35392	4.058	.0001
DY4	.03638	.01318	.21233	.31123	.19803	.24923	2.760	.0067
DEAST	.08025	.03191	.19344	.04534	.18043	.22830	2.515	.0133
DIREQ	-6.01885E-04	2.66414E-04	-.16766	-.15825	-.16210	-.20615	-2.259	.0258
(Constant)	.18438	.02066					8.922	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.03997	-.05147	.84658	-.550	.5832
TAX	.11521	.14098	.80341	1.520	.1312
DY1	.07604	.09188	.79117	.985	.3266
DY2	.04077	.05053	.83659	.540	.5901
DY3	.03724	.04505	.80330	.481	.6311
GDI	-.07133	-.09059	.83553	-.971	.3335
DEPS	-.12686	-.15916	.83682	-1.721	.0879
DY5	-.08188	-.10368	.83267	-1.113	.2681
DY6	-.18152	-.21774	.79964	-2.382	.0189
FIRM	-4.741E-03	-.00600	.85774	-.064	.9490

Variable(s) Entered on Step Number

7.. DY6

Multiple R	.66030		
R Square	.43600	R Square Change	.02807
Adjusted R Square	.40137	F Change	5.67359
Standard Error	.06288	Signif F Change	.0189

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	7	.34845	.04978
Residual	114	.45075	.00395

F = 12.58951 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.361562E-03	2.38778E-04	.43401	.38004	.40108	.47109	5.702	.0000
OPTION	.01972	6.55509E-03	.22334	.26927	.21165	.27125	3.009	.0032
EMPL	3.492780E-05	9.03197E-06	.27964	.25310	.27200	.34054	3.867	.0002
DY4	.02727	.01348	.15913	.31123	.14230	.18617	2.023	.0454
DEAST	.08491	.03135	.20466	.04534	.19052	.24590	2.709	.0078
DIREQ	-7.33047E-04	2.66902E-04	-.20420	-.15825	-.19318	-.24912	-2.746	.0070
DY6	-.03968	.01666	-.18152	-.27006	-.16754	-.21774	-2.382	.0189
(Constant)	.19808	.02106					9.406	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.07253	-.09414	.79873	-1.005	.3169
TAX	.08065	.09874	.78324	1.055	.2938
DY1	.04605	.05614	.78338	.598	.5512
DY2	-7.791E-03	-.00952	.74185	-.101	.9196
DY3	-7.270E-03	-.00874	.70962	-.093	.9262
GDI	-.07061	-.09188	.79817	-.981	.3288
DEPS	-.12389	-.15923	.79111	-1.715	.0892
DY5	-.12381	-.15699	.74584	-1.690	.0938
FIRM	-.02493	-.03212	.79930	-.342	.7333

Variable(s) Entered on Step Number

8.. DEPS GROWTH IN EPS

Multiple R	.67104		
R Square	.45030	R Square Change	.01430
Adjusted R Square	.41138	F Change	2.93953
Standard Error	.06235	Signif F Change	.0892

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	8	.35988	.04498
Residual	113	.43932	.00389

F = 11.57068 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.364042E-03	2.36777E-04	.43480	.38004	.40180	.47647	5.761	.0000
OPTION	.01941	6.50260E-03	.21979	.26927	.20820	.27036	2.985	.0035
EMPL	3.657897E-05	9.00774E-06	.29286	.25310	.28323	.35686	4.061	.0001
DY4	.02965	.01344	.17302	.31123	.15389	.20323	2.206	.0294
DEAST	.09545	.03168	.23007	.04534	.21011	.27265	3.012	.0032
DIREQ	-7.03827E-04	2.65209E-04	-.19606	-.15825	-.18510	-.24222	-2.654	.0091
DY6	-.03919	.01652	-.17927	-.27006	-.16544	-.21778	-2.372	.0194
DEPS	-8.20979E-03	4.78842E-03	-.12389	-.06481	-.11958	-.15923	-1.715	.0892
(Constant)	.19037	.02136					8.913	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.04921	-.06330	.78861	-.671	.5035
TAX	.10298	.12621	.76149	1.346	.1809
DY1	.07301	.08857	.74508	.941	.3487
DY2	3.4890E-03	.00430	.73066	.046	.9638
DY3	5.4741E-03	.00663	.69772	.070	.9442
GDI	-.05712	-.07478	.79036	-.794	.4291
DY5	-.11833	-.15182	.73656	-1.626	.1069
FIRM	-.03941	-.05109	.79105	-.541	.5893

APPENDIX 13

* * * * MULTIPLE REGRESSION * * * *
RESULTS

THE SECOND MODEL

Variable(s) Entered on Step Number

1.. FSPER FOREIGN TURNOVER AS A PER OF THE TOTAL

Multiple R	.38004		
R Square	.14443	R Square Change	.14443
Adjusted R Square	.13730	F Change	20.25710
Standard Error	.07549	Signif F Change	.0000

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	.11543	.11543
Residual	120	.68377	.00570

F = 20.25710 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.192235E-03	2.64895E-04	.38004	.38004	.38004	.38004	4.501	.0000
(Constant)	.24160	8.19950E-03					29.465	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
TS	.19669	.20992	.97449	2.342	.0208
DIREQ	-.14198	-.15335	.99811	-1.693	.0931
LOB	-.03742	-.04012	.98308	-.438	.6622
DEAST	.16742	.17347	.91857	1.922	.0571
TAX	8.6918E-03	.00928	.97605	.101	.9195
DY1	-2.010E-03	-.00216	.99028	-.024	.9812
DY2	.01036	.01107	.97655	.121	.9041
DY3	-.05220	-.05611	.98868	-.613	.5410
GDI	-.11861	-.12823	.99999	-1.410	.1610
DEPS	-.04756	-.05137	.99792	-.561	.5758
OPTION	.31199	.33548	.98927	3.885	.0002
DY4	.24916	.26467	.96540	2.994	.0033
DY5	-.12920	-.13922	.99337	-1.534	.1278
DY6	-.22852	-.24534	.98616	-2.761	.0067
FIRM	-4.109E-03	-.00444	.99988	-.048	.9614

Variable(s) Entered on Step Number

2.. OPTION EXISTANCE OF EXECUTIVE SHARE OPTION

Multiple R	.49064		
R Square	.24072	R Square Change	.09629
Adjusted R Square	.22796	F Change	15.09205
Standard Error	.07141	Signif F Change	.0002

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	.19238	.09619
Residual	119	.60681	.00510

F = 18.86401 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.293634E-03	2.51945E-04	.41236	.38004	.41014	.42587	5.135	.0000
OPTION	.02755	7.09258E-03	.31199	.26927	.31031	.33548	3.885	.0002
(Constant)	.22564	8.77781E-03					25.706	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
TS	.19380	.21955	.96458	2.445	.0160
DIREQ	-.14951	-.17136	.98762	-1.889	.0613
LOB	-.03810	-.04336	.97265	-.471	.6382
DEAST	.14822	.16273	.91235	1.792	.0758
TAX	.03796	.04285	.96273	.466	.6421
DY1	.02385	.02715	.97798	.295	.7685
DY2	.03235	.03660	.96405	.398	.6915
DY3	-.04235	-.04831	.97749	-.525	.6003
GDI	-.11362	-.13037	.98901	-1.428	.1558
DEPS	-.05389	-.06177	.98741	-.672	.5027
DY4	.17260	.18640	.88553	2.061	.0415
DY5	-.13034	-.14909	.98283	-1.638	.1041
DY6	-.19430	-.21988	.97239	-2.448	.0158
FIRM	-.05000	-.05677	.96861	-.618	.5380

Variable(s) Entered on Step Number

3.. DY6

Multiple R	.52672		
R Square	.27743	R Square Change	.03671
Adjusted R Square	.25906	F Change	5.99488
Standard Error	.06996	Signif F Change	.0158

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	.22172	.07391
Residual	118	.57747	.00489

F = 15.10216 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.214483E-03	2.48926E-04	.38713	.38004	.38179	.40971	4.879	.0000
OPTION	.02553	6.99730E-03	.28906	.26927	.28549	.31838	3.648	.0004
DY6	-.04248	.01735	-.19430	-.27006	-.19160	-.21988	-2.448	.0158
(Constant)	.23500	9.41114E-03					24.971	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
TS	.21091	.24412	.95157	2.723	.0075
DIREQ	-.19537	-.22497	.93395	-2.497	.0139
LOB	-.07209	-.08292	.94571	-.900	.3700
DEAST	.14973	.16850	.89860	1.849	.0670
TAX	1.7496E-03	.00199	.93421	.022	.9829
DY1	1.5996E-03	.00185	.95825	.020	.9840
DY2	-7.542E-04	-.00086	.94034	-.009	.9926
DY3	-.08095	-.09300	.93885	-1.010	.3144
GDI	-.11869	-.13956	.97173	-1.525	.1301
DEPS	-.05933	-.06968	.97047	-.756	.4514
DY4	.12540	.13326	.81601	1.454	.1485
DY5	-.15955	-.18532	.95428	-2.040	.0436
FIRM	-.07575	-.08746	.95677	-.950	.3442

Variable(s) Entered on Step Number

4.. TS TOTAL TURNOVER

Multiple R	.56612		
R Square	.32049	R Square Change	.04306
Adjusted R Square	.29726	F Change	7.41420
Standard Error	.06813	Signif F Change	.0075

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	4	.25614	.06403
Residual	117	.54306	.00464

F = 13.79586 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.312578E-03	2.45087E-04	.41840	.38004	.40814	.44371	5.356	.0000
OPTION	.02518	6.81574E-03	.28511	.26927	.28154	.32321	3.694	.0003
DY6	-.04622	.01695	-.21140	-.27006	-.20777	-.24441	-2.726	.0074
TS	6.222909E-10	2.28539E-10	.21091	.13097	.20751	.24412	2.723	.0075
(Constant)	.22249	.01025					21.699	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
DIREQ	-.17826	-.21087	.93031	-2.323	.0219
LOB	-.09503	-.11212	.93676	-1.215	.2268
DEAST	.11316	.12901	.88318	1.401	.1638
TAX	9.9581E-03	.01167	.91642	.126	.9002
DY1	1.8048E-03	.00216	.93781	.023	.9815
DY2	-.01236	-.01455	.92315	-.157	.8758
DY3	-.10314	-.12158	.92977	-1.319	.1897
GDI	-.12210	-.14803	.95157	-1.612	.1097
DEPS	-.08206	-.09883	.95066	-1.070	.2870
DY4	.17954	.19264	.78226	2.114	.0366
DY5	-.17193	-.20561	.94398	-2.263	.0255
FIRM	-.04364	-.05132	.93955	-.553	.5810

Variable(s) Entered on Step Number

5.. DIREQ DIRECTORS EQUITY

Multiple R	.59221		
R Square	.35071	R Square Change	.03022
Adjusted R Square	.32272	F Change	5.39820
Standard Error	.06688	Signif F Change	.0219

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	5	.28028	.05606
Residual	116	.51891	.00447

F = 12.53121 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.267826E-03	2.41376E-04	.40413	.38004	.39297	.43833	5.252	.0000
OPTION	.02521	6.69115E-03	.28546	.26927	.28188	.33020	3.768	.0003
DY6	-.05379	.01696	-.24604	-.27006	-.23732	-.28252	-3.172	.0019
TS	5.767377E-10	2.25216E-10	.19547	.13097	.19159	.23132	2.561	.0117
DIREQ	-6.39950E-04	2.75437E-04	-.17826	-.15825	-.17383	-.21087	-2.323	.0219
(Constant)	.24962	.01542					16.190	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.10406	-.12544	.90014	-1.356	.1778
DEAST	.16875	.19079	.82993	2.084	.0394
TAX	3.4588E-03	.00414	.89804	.044	.9646
DY1	-.03060	-.03681	.90981	-.395	.6935
DY2	-.03225	-.03859	.89603	-.414	.6796
DY3	-.06994	-.08261	.90584	-.889	.3759
GDI	-.11352	-.14061	.93004	-1.523	.1305
DEPS	-.06422	-.07869	.93008	-.846	.3991
DY4	.17976	.19731	.78226	2.158	.0330
DY5	-.17316	-.21183	.91223	-2.324	.0219
FIRM	-.02653	-.03176	.92186	-.341	.7339

Variable(s) Entered on Step Number

6.. DY5

Multiple R	.61631		
R Square	.37984	R Square Change	.02914
Adjusted R Square	.34749	F Change	5.40273
Standard Error	.06565	Signif F Change	.0219

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	6	.30357	.05059
Residual	115	.49563	.00431

F = 11.73948 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.218307E-03	2.37878E-04	.38835	.38004	.37610	.43096	5.122	.0000
OPTION	.02500	6.56829E-03	.28309	.26927	.27952	.33450	3.806	.0002
DY6	-.05924	.01681	-.27096	-.27006	-.25879	-.31220	-3.524	.0006
TS	6.053073E-10	2.21402E-10	.20515	.13097	.20077	.24704	2.734	.0072
DIREQ	-6.44290E-04	2.70360E-04	-.17947	-.15825	-.17500	-.21693	-2.383	.0188
DY5	-.05361	.02307	-.17316	-.15930	-.17069	-.21183	-2.324	.0219
(Constant)	.25506	.01531					16.656	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.09243	-.11375	.88598	-1.222	.2241
DEAST	.16963	.19623	.82991	2.137	.0348
TAX	.01449	.01772	.88379	.189	.8502
DY1	-.04620	-.05666	.88909	-.606	.5458
DY2	-.05702	-.06919	.87216	-.741	.4605
DY3	-.09968	-.11905	.88356	-1.280	.2031
GDI	-.08533	-.10636	.91216	-1.142	.2558
DEPS	-.06265	-.07854	.91204	-.841	.4020
DY4	.14113	.15374	.73588	1.661	.0994
FIRM	-.05907	-.07126	.89910	-.763	.4471

Variable(s) Entered on Step Number

7.. DEAST

Multiple R	.63539		
R Square	.40372	R Square Change	.02388
Adjusted R Square	.36711	F Change	4.56539
Standard Error	.06465	Signif F Change	.0348

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	7	.32265	.04609
Residual	114	.47654	.00418

F = 11.02658 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	Correl	Part Cor	Partial	T	Sig T
FSPER	1.341805E-03	2.41298E-04	.42771	.38004	.40217	.46192	5.561	.0000
OPTION	.02416	6.48061E-03	.27362	.26927	.26967	.32970	3.729	.0003
DY6	-.06069	.01657	-.27759	-.27006	-.26491	-.32450	-3.663	.0004
TS	5.042811E-10	2.23115E-10	.17091	.13097	.16346	.20710	2.260	.0257
DIREQ	-7.88416E-04	2.74675E-04	-.21962	-.15825	-.20759	-.25962	-2.870	.0049
DY5	-.05384	.02272	-.17389	-.15930	-.17141	-.21670	-2.370	.0195
DEAST	.07037	.03294	.16963	.04534	.15453	.19623	2.137	.0348
(Constant)	.22393	.02097					10.680	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
LOB	-.09185	-.11527	.82990	-1.234	.2199
TAX	.06278	.07537	.76846	.803	.4234
DY1	2.5431E-03	.00303	.75364	.032	.9744
DY2	-.08402	-.10272	.81009	-1.098	.2746
DY3	-.09900	-.12058	.82990	-1.291	.1993
GDI	-.05474	-.06803	.79346	-.725	.4700
DEPS	-.09301	-.11706	.80431	-1.253	.2128
DY4	.12416	.13722	.72832	1.473	.1436
FIRM	-.06949	-.08533	.82668	-.910	.3646

APPENDIX 14

MULTIPLE REGRESSION

RESIDUALS STATISTICS: THE FIRST MODEL

	Min	Max	Mean	Std Dev	N
*PRED	.1765	.4871	.2620	.0545	122
*RESID	-.1298	.1371	.0000	.0603	122
*ZPRED	-1.5673	4.1277	-.0000	1.0000	122
*ZRESID	-2.0817	2.1980	.0000	.9664	122

Total Cases = 122

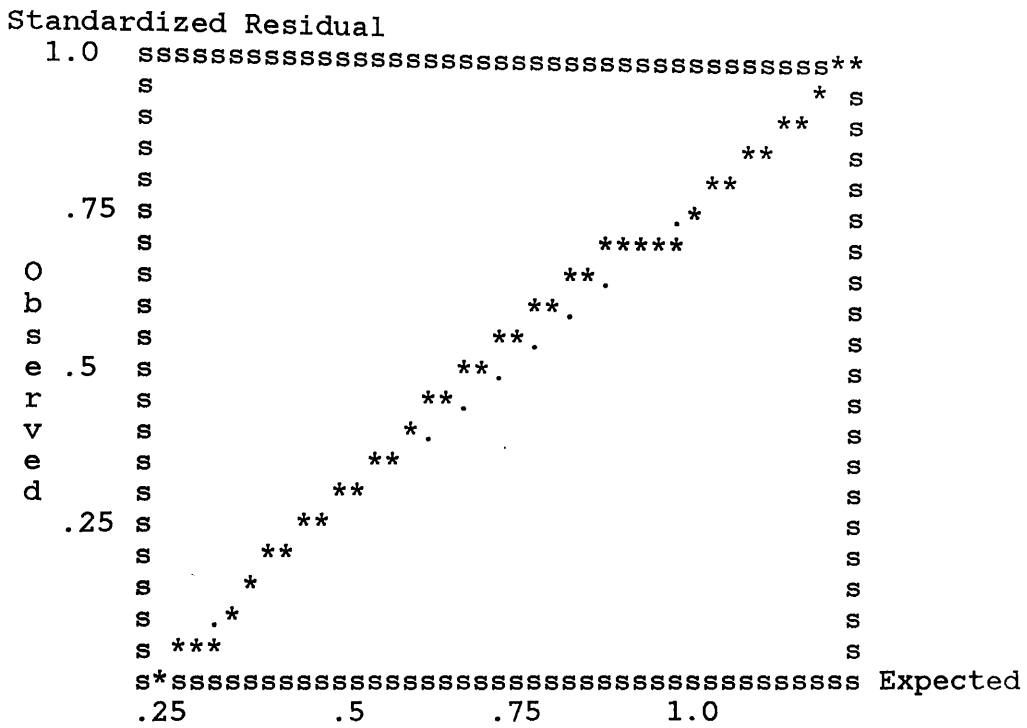
14.1 Outliers - Standardized Residual

Case #	*ZRESID
106	2.19801
66	2.13148
99	-2.08167
19	-1.86506
24	1.83423
36	-1.81377
29	-1.76989
9	1.74137
57	-1.72189
107	1.65918

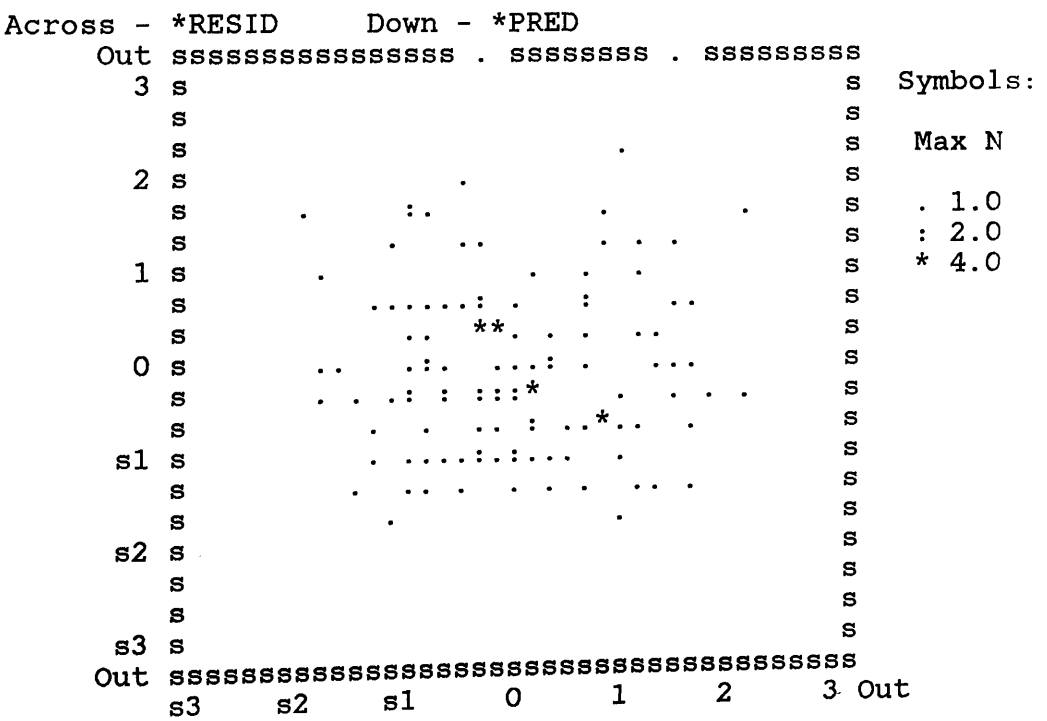
14.2 Histogram - Standardized Residual

```
NExp N      (* = 1 Cases,     . : = Normal Curve)
0  .09   Out
0  .19  3.00
0  .48  2.67
1 1.09  2.33 :
2 2.23  2.00 *:
6 4.08  1.67 ***:**
9 6.69  1.33 ******:**
9 9.84  1.00 *********.
* 13.0   .67 **********  .
* 15.3   .33 ***********   .
* 16.1   .00 ***************:*
* 15.3  -.33 ***************:****
* 13.0  -.67 ********** .
* 9.84 -1.00 *********:*****
7 6.69 -1.33 ******:
3 4.08 -1.67 ***.
2 2.23 -2.00 *:
0 1.09 -2.33 .
0  .48 -2.67
0  .19 -3.00
0  .09   Out
```

14.3 Normal Probability (P-P) Plot



14.4 Standardized Scatterplot



APPENDIX 15

MULTIPLE REGRESSION

RESIDUALS STATISTICS: THE SECOND MODEL

	Min	Max	Mean	Std Dev	N
*PRED	.1716	.4631	.2620	.0516	122
*RESID	-.1478	.1466	.0000	.0628	122
*ZPRED	-1.7504	3.8946	-.0000	1.0000	122
*ZRESID	-2.2857	2.2680	.0000	.9706	122

Total Cases = 122

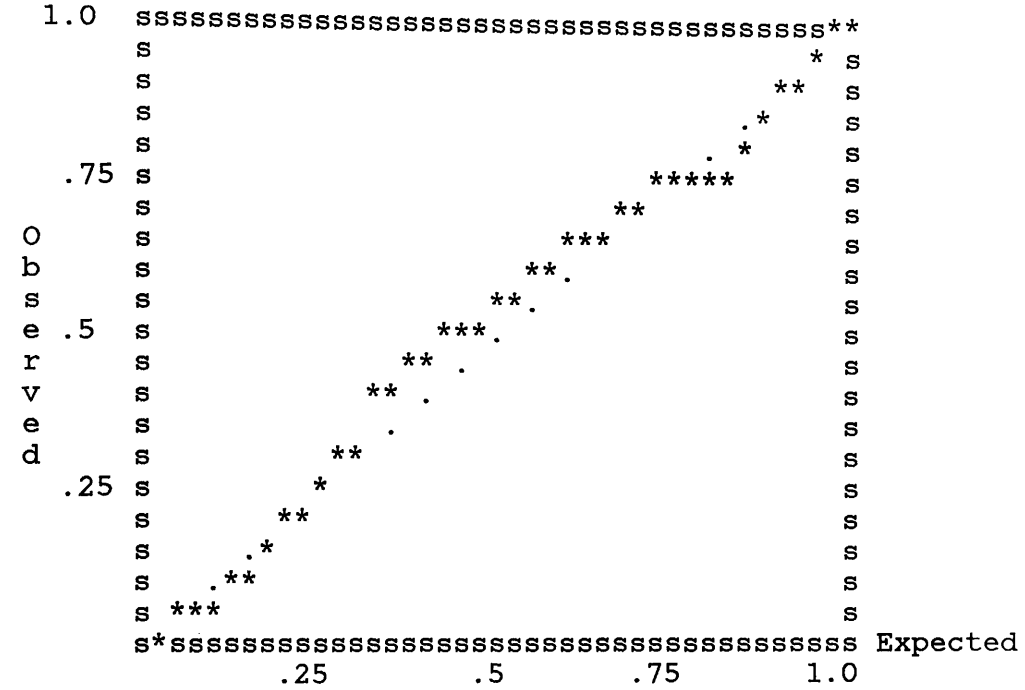
15.1 Outliers - Standardized Residual

Case #	*ZRESID
29	-2.28575
19	-2.28175
66	2.26799
99	-2.25204
101	2.10004
106	1.81047
15	-1.80299
116	1.70306
33	1.69499
57	-1.60194

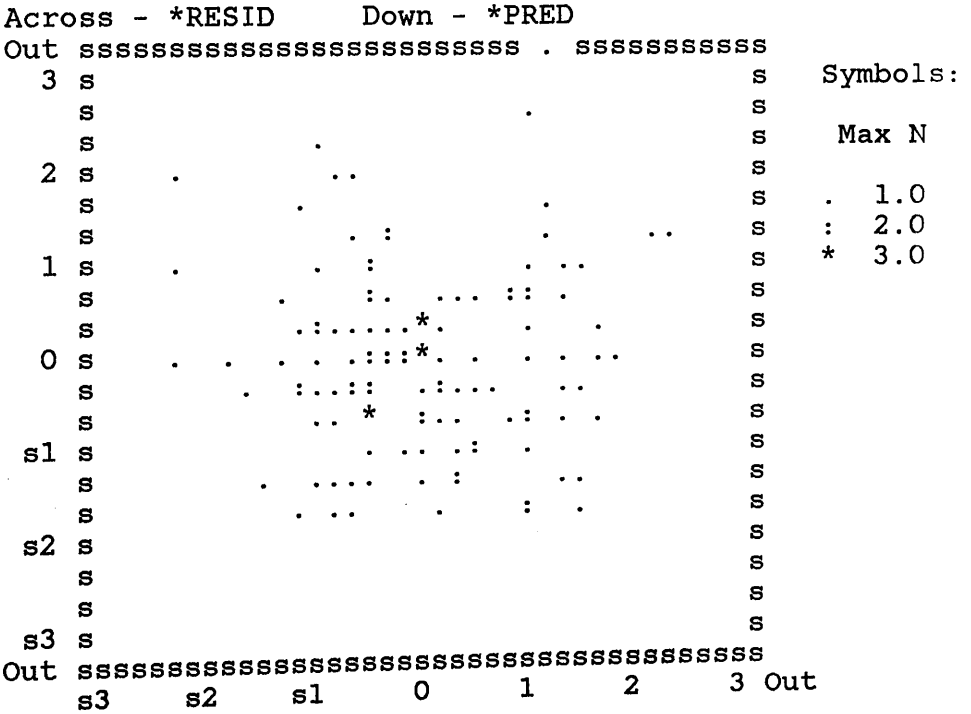
15.2 Histogram - Standardized Residual

```
NExp N      (* = 1 Cases,     . : = Normal Curve)
0  .09   Out
0  .19  3.00
0  .48  2.67
1 1.09  2.33 :
1 2.23  2.00 *.
6 4.08  1.67 ***:**
8 6.69  1.33 ******:*
* 9.84  1.00 *********:****
6 13.0   .67 ******      .
* 15.3   .33 ************* .
* 16.1   .00 ************** .
* 15.3  -.33 **************:****
* 13.0  -.67 ************:**
* 9.84 -1.00 *********:**
8 6.69 -1.33 ******:*
2 4.08 -1.67 ** .
0 2.23 -2.00  .
3 1.09 -2.33 :**
0  .48 -2.67
0  .19 -3.00
0  .09   Out
```

15.3 Normal Probability (P-P) Plot



15.4 Standardized Scatterplot



BIBLIGREOPHY

Abdel-Kahlik, A.R. (1976) Financial Information Requirements for Security Analysis. Duke Second Accounting Symposium, Graduate School of Business Admin. Durham, N.C.: Duke University.

Abdel-Kahlik, A.R. and J.C. McKeown. (1978) "Understanding Accounting Changes in an Efficient Market: Evidence of Differential Reaction." The Accounting Review, October, pp 851-868.

Abdel-Khalik, A.R. and T. Keller (Editors). (1978) The Impact of Accounting Research on Practice and Disclosure. Durham, N.C.: Duke University Press.

Abdel-Khalik, A.R. (1982) "Returns to Informational Advantages: The Case of Analysts Forcast Reveisions." The Accounting Review, October, pp 661-680.

Abdel-Khalik, A.R. And B.B. Ajinkya. (1979) Empirical Research in Accounting: A Methodological Viewpoint. Sarasota, Fla.: American Accounting Association.

Abdel-Khalik, A.R. [Editor] (1980) Government Regulation of Accounting and Information. Proceedings of a conference sponsored by The Accounting Research Center of the College of Business Administration. University of Florida.

Accounting Standards (Steering) Committee. (1975) The Corporate Report. London.

Accounting Standard Committee. (1979) The Employment Statement in Company Reports. A study prepared for the ASC by Thompson and Knell, ASC, 1979.

Advisory Committee on Corporate Disclosure. (1977) Report of the Advisory Committe on Corporate Disclosure to the Securities and Exchange Commission. Washington, D.C.: U.S. Government Printing Office, November 3th.

AICPA. (1973) Study Group on the Subjectives of Financial Statements. AICPA.

Alexander, D. (1986) Financial Reporting: The Theoretical and Regulatory Framework. London: GEE.

Alchian, A.A. and H. Demsetz. (1972) "Production, Information Costs and Econmic Organisation." The American Economic Review, December, pp 777-795.

American Accounting Assotiation. (1966) A Statement of Basic Accounting Theory. Evanston, Ill. AAA.

Amershi, A. (1982) Necessary and Sufficient Conditions for Pareto-Efficient Risk Sharing in Incomplete Markets. Working Paper, Stanford University.

Anderson, C.D. (1962) Corporate Reporting for the Professional Investor. New York: Financial Analysts Federation.

Anderson, J.A.(1974) "Information Interactions and Accounting Information User Reactions." The Accounting Review, July, pp 509-511.

Andrew, T. (1983) The Contingency Theory of Corporate Reporting: Some Empirical Evidence. Paper Presented at the EAA Annual Conference. University of Glasgow, Glasgow, Scotland, April 1983.

Anthony, R.N. (1984) "Distinguishing Good From Not-So-Good Accounting Research." In The Evaluation of behavioral Accounting Research, edited by R.H. Ashton. New York: Garlard.

Aoki, M. (1983) "Managerialism Rivisited in the Light of Bargaining-Game Theory." International Journal of Industrial Organization, pp 1-21.

Archibald, T.R. (1967) "The Return to Straight-Line Depreciation: An Analysis of a Change in Accounting Methods." Journal of Accounting Research Supplement to Vol. 5, Empirical Research in Accounting: Selected Studies, pp 164-180.

Archibald, T.R. (1972) "Stock Market Reaction to the Depreciation Switch-Back." The Accounting Review, January, pp 22-30.

Armstrong, M. (1977) "The Politics of Establishing Accounting Standards." Journal of Accountancy, February, pp 76-79.

Arrow, K.J. (1962) "Economic Walfare and the Allocation of Resources for Inventions." The Rate and Direction of Inventive Activity, pp 609-625.

Arrow, K.J. (1978) Risk Allocation and Information: Some Recent Theoretical Developments. W.A. Mackintosh Lecture.

Ashley, J.W. (1962) "Stock Prices and Changes in Earnings and Dividends: Some Empirical Results." Journal of Political Economy, February, pp 82-85.

Assael, H. and J. Keon. (1982) "Nonsampling Versus Sampling Errors in Survey Research." Journal of Marketing Research, Spring, pp 114-123.

Atiase, R. L. Bamber and R. Freeman. (1988) "Accounting Disclosure Based on Company Size: Regulations and Capital Market Evidence." Accounting Horizons, March, pp 18-25.

Atkinson, A.A. and G.A. Feltham. (1982) "Agency Theory Research and Financial Accounting Standards." In Research to Support Standard Setting in Financial Accounting: A Canadian Perspective, edited by Sanjoy Basu and J. Alex Milburn. Toronto: The Clarkson Gordon Foundation, pp 257-289.

Ball, R.J. (1972) "Changes in Accounting Techniques and Stock Prices." Journal of Accounting Research. Supplement to vol. 10, Empirical Research in Accounting: Selected Studies, pp 1-38.

Ball, R.J. (1978) "Anomalies in Relationships Between Securities' Yields and Yield Surrogates." Journal of Financial Economics, June-September, pp 103-126.

Ball, R.J. (1987) Accounting, Auditing, and the Nature of the Firm. Unpublished Working Paper. University of Rochester.

Ball, R. J. and P. Brown. (1967) "Some Preliminary Evidence on the Association Between the Earnings of a Firm, Its industry, and the Economy." Empirical Research in Accounting: Selected Studies, Supplement to Vol. 5, Journal of Accounitng Research, pp 55-77.

Ball, R. J. and P. Brown. (1968) "An Empirical Evaluation of Accounting Income Numbers." Journal of Accounting Research, Autumn, pp 159-178.

Bamoul, W.J. (1967) Business Behaviour, Value, and Growth. New York: Harcourt Brace Jovanovich.

Barnea, A., R.A. Haugen, and L.W. Senbet (1980) An Agency Theoretic Analysis of the Incentive to Advanced Acoounting. Working Paper, University of Wisconsin-Madison.

Barrett, M.E. (1976) "Financial Reporting Practices: Disclosure and Comprehensiveness in an International Setting." Journal of Accounting Research, Spring, pp 10-26.

Barry, C.B. (1974) "Portfolio Analysis Under Uncertain Means, Variances and Covariances." Journal of Finance, May, pp 515-522.

Basu, S. (1981) "Market Reactions to Accounting Policy Deliberations: The Inflation Accounting Case Revisited." The Accounting Review, Octobre, pp 942-954.

Baxter, W.J. (1988) Accounting Research- Academic Trends Versus Practical Needs. ICAS, Edinburgh.

Beaver, W.H. (1968) "The Information Content of Annual Earnings Announcements." Journal of Accounting Research Supplement to Vol. 6, Empirical Research in Accounting, pp 87-92.

Beaver, W.H. (1972) "The Behavior of Security Prices and its Implications for Accounting Research." Supplement to the Accounting Review, pp 408-437.

Beaver, W.H. (1973) "What Should Be the FASB´s Objectives?". Journal of Accountany, August, pp 49-56.

Beaver, W.H. (1974) The Nature of Financial Accounting Objectives: A Summary and Synthesis. Journal of Accounting Research, pp 170-187.

Beaver, W.H. (1981) Financial Reporting: An Accounting Revolution.Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Beaver, W.H. and R.E. Dukes. (1972) "Interperiod Tax Allocation, Earnings Expectations, and the Behavior of Security Prices." The Accounting Review, April, pp 320-332.

Beaver, W.H. and R.E. Dukes. (1973) "Delta-Depreciation Methods: Some Empirical Results." The Accounting Review, July, pp 549-559.

Beaver, W.H., P. Kettler and M. Scholes. (1970) "The Association Between Market Determind and Accounting Determined Risk Measures." The Accounting Review, October, pp 654-682.

Beaver, W.H. and J. Manegold. (1975) "The Association Between Market-Determined an Accounting-Determined Measures of Systematic Risk." Journal of Financial and Quantitative Analysis, June, pp 231-284.

Belkaoui, A., A. Kahl, and J. Peyrard. (1977) "Information Needs of Financial Analysts: An International Comparison." International Journal of Accounting Education and Research, Vol. 13, No 1, Fall, pp 19-27.

Ben-Zion, U. and S. S. Shalit. (1975) "Size, Leverage and Dividend Record as Determinants of Equity Risk." Journal of Finance, September, pp 1015-1026.

Benston, G.J. (1967) "Published Corporate Accounitng Data and Stock Prices." Journal of Accounting Research, Supplement, Empirical Research in Accounting: Selected Studies, pp 1-54.

Benston, G.J. (1973) "Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934." The American Economic Review, Vol. 63, No 1, March, pp 132-155.

Benston, G.J. (1976) Public (U.S.) Compared to Private (U.K.) Regulation of Corporate Financial Disclosure. The Accounting Review, Vol. LI, No 3, July, pp 483-498.

Benston, G.J. (1976a) Corporate Financial Disclosure in the U.K. and the U.S.A. England, D.C. Heath Ltd. England.

Brerry, C.H. (1974) "Corporate Diversification and Market Efficiency." Bell Journal of Economics, Spring, pp 221-249.

Bhattacharya, S. (1979) "Imperfect Information, Dividend Policy, and 'the Bird in the Hand' Fallacy." Bell Journal of Economics, Spring, pp 259-270.

Bierman, H.Jr. (1974) "The Implications of Accounting of Efficient Markets and Capital Asset Pricing Model." The Accounting Review, July, pp 557-562.

Black, F. (1973) "Yes, Virginia, There is Hope: Tests of the Value Line Ranking System." Financial Analysts' Journal, September-October, pp 10-14.

Blackwell, D. (1951) "Comparision of Experiments." Proceedings of the Second Berkley Symposium on Mathematical Statestics and Probability. Berkley: University of California Press, pp 93-102.

Blackwell, D. (1953) "Equivalent Comparisions of Experiments." Annals of Mathematical Statistics, pp 267-272.

Briloff, A. (1976) More Debits than Credits. New York: Harper and Row.

Brown, P. (1970) "The Impact of the Annual Net Profit Report on the Stock Market." The Australian Accountant, July, pp 277-283.

Brown, P. and J. Kennelly. (1972) "The Information Content of Quarterly Earnings: An Extension and Some Further Evidence." Journal of Business, July, pp 403-415.

Brown, P. and V. Niederhoffer. (1968) "The Predictive Content of Quarterly Earnings." The Journal of Business, October, pp 488-497.

Brown, P., G. Foster, and E. Noreen. (1985) Security Analyst Multi-Year Earnings Forecasts and the Capital Market. Studies in Accounting Research No. 21. Sarasota, Fla.: American Accounting Association.

Brown, R.M. (1980) "Short-Range Market Reaction to Changes in LIFO Accounting Using Preliminary Earnings Announcement Dates." Journal of Accounting Research, Spring, pp 38-63.

Brown, S.L. (1978) "Earnings Changes, Stock Prices and Market Efficiency." The Journal of Finance, March, pp 17-28.

Bryant, M. J. and D. B. Thornton. (1981) "Public Choice of Corporate Accounting Standards." Unpublished Paper, The Annual Conference of the Candadian Academic Accounting Association, Halifax, N.S.

Bublitz, B., T.J. Frecka and J.C. McKeown. (1985) "Market Association Tests and FASB Statement No. 33 Disclosure: A Rexamination." Journal of Accounting Research. Supplement, Studies on Accounting Earnings and Security Valuation: Current Research Issues pp 1-23.

Buckley, J. W. (1980) "Policy models in accounting: a critical commentary." Accounting, Organisation and Society, 5, pp 49-64.

Butterworth, J.E. (1972) " The Accounting System as an Information Function." Journal of Accounting Research, Spring, pp 1-27.

Butterworth, J.E., M. Gibbins, and R. King, (1982) "The Structure of Accounting Theory: Some Basic Conceptual and Methodological Issues." In Research to Support Standard Setting in Financial Accounting: A Canadian Perspective, edited by S. Basu and J.A. Milburn. Toronto: The Clarkson Gordon Foundation, pp 1-65.

Buzby, S.L. (1974) "The Nature of Adequate Disclosure." The Journal of Accountancy, April, pp 38-47, and 48.

Buzby, S.L. (1975) "Company Size, Listed Versus Unlisted Stocks, and the Extent of Financial Disclosure." Journal of Accounting Research, Spring, pp 16-37.

Cerf, A.R. (1961) Corporate Reporting and Investment Decision. Public Accounting Research Programme, Institute of Business and Economic Research. University of California, Berkeley, California.

Chandra, G. (1974) "A Study of the Consensus on Disclosure among Public Accountants and Security Analysts." The Accounting Review, October, pp 733-742.

Chandra, G. (1975) "Information Needs of Security Analysts." Journal of Accounting, Vol. 140, No 6, pp 65-70.

Chen, R.S. (1975) "Social and Financial Stewardship." The Accounting Review, July, pp 533-543.

Choi, F.D. (1972) Financial Reporting and Disclosure in Relation to Broadly Based Capital Markets. Unpublished Ph.D. Dissertation, Seatle-Wasington: University of Washington.

Choi, F.D. (1973) "Financial Disclosure and Entry to the European Capital Markets." Journal of Accounting Research, Autumn, pp 159-175.

Chow, C. (1981) "The Impacts of Accounting Regulation and Bondholders and Shareholders Wealth: The Case of Securities Acts." The Accounting Review, July, pp 485-520.

Christenson, C. (1983) "The Methodology of Positive Accounting." The Accounting Review, Vol. LVIII, No 1, January, pp 1-22.

Christenson, J. (1981) "Communication in Agency." Bell Journal of Economics, Autumn, pp 661-674.

Coase, R.H. (1937) "The Nature of the Firm." 4 Economica, November, pp 386-405.

Coase, R. (1950) "The Problem of Social Cost." Journal of Law and Economics, 3, October, pp 1-44.

Collins, D.W. (1975) "SEC Product-Line Reporting and Market Efficiency." Journal of Financial Economics, June, pp 125-164.

Collins, D.W., M.S. Rozeff, and D.S. Dhaliwal. (1981) "The Economic Determinants of Market Reaction to Proposed Mandatory Accounting Changes in the Oil and Gas Industry: A Cross-Sectional Analysis." Journal of Accounting and Economics, May, pp 37-72.

Cooper, R.A. and A.J. Weekes. (1983) Data, Models and Statistical Analysis. Philip Allen, London.

Cyert, R. and J. March. (1963) A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice-Hall.

Daley, L. and R. Vigeland. (1983) "The Effects of Debt Convenants and Political Costs on the Choice of the Choice of Accounting Methods: The Case of Accounting for R&D Costs." Journal of Accounting and Economics, 5, December, pp 195-211.

Daley, L. and R. Vigeland. (1983) "The Effects of Debt Convenants and Political Costs on the Choice of Accounting Methos." Paper Presented at The Annual Meeting of the AAA.

Day, J. (1986) "The Use of Annual Reports by UK Investment Analysts." Accounting and Business Research, Autumn, pp 295-307.

Deakin, E.B., G.R. Norwood, and C.H. Smith. (1974) "The Effect of Published Earnings Information on Tokyo Stock Exchange Trading." International Journal of Accounting, Fall, pp 124-136.

Deming, W.E. (1960) Sample Design in Business Research. New York: John Wiley & Son, p 26.

Demsetz, H. (1969) "Information and Deficiency: Another Viewpoint." Journal of Law and Economics, April, pp 1-22.

Demski, J.S. (1973) "The General Impossibility of Normative Standards." Accounting Review, October, pp 718-723.

Demski, J.S. (1973a) "Rational Choice of Accounting Method for a Partnerships." Journal of Accounting Research, Autumn, pp 176-190.

Demski, J.S. (1974) "Choice among Financial Reporting Alternatives." Accounting Review, April, pp 221-232.

Demski, J.S., and Feltham, (1976) Cost Determination: A Conceptual Approach. Ames, Iowa: Iowa State University Press.

Department of Trade (1976) Aims and Scope of Company Reports. Department of Trade, May 1976.

Dhaliwal, D.S. (1978) The Impact of Disclosure Regulations on the Cost of Capital. In Economic Consequences of Financial Accounting Standards, Selected Papers.

Dhaliwal, D.S. (1980) "The Effect of the Firm's Capital Structure on the Choice of Accounting Methods." The Accounting Review, January, pp 78-84.

Diamond, D.W. and R.E. Verrecchia. (1981) "Information Aggregation in a Noisy Rational Exceptions Economy." Journal of Financial Economics, pp 221-235.

Downes, D.H. and R. Heinkel. (1982) "Signaling and the VAluation of Unseasoned New Issues." Journal of Finance, March, pp 1-10.

Duff and Phelps, Inc. (1976) A Management Guide to Better Financial Reporting. Report for Arthur Anderson and Company.

Dukes, R.E. (1976) "An Investigation of the Effects of Expensing Research and Development Costs on Security Prices." In Proceedings of the Conference on Topical Research in Accounting, edited by M. Schiff and G. Sorter. New York: Ross Institute of Accounting Research, New york University, pp 147-193.

Dyckman, T.R., D.H. Downes, and R.P. Magee. (1975) Efficient Capital Markets and Accounting: A Critical Analysis. Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Eastman, B. (1984) Interpreting Mathematical Economics and Econmetrics. London: Macmillan.

Emanuel, D.M. (1984) "The Information Content of Sign and Size of Earnings Announcements: New Zealand Evidence." Accounting and Finance, November, pp 25-43.

Emory, (1985) Business Research Methods, 3rd ed. Homewood, Illinois: Irwin.

Fama, E.F. (1970) "Efficient Capital Markets: A Review of Theory and Empirical Work." Journal of Finance, May, pp 383-417.

Fama, E.F. (1980) "Agency Problems and the Theory of the Firm." Journal of Political Economy, April, pp 288-307.

Fama, E.F. and A.B. Laffer. (1971) "Information and Control Markets." Journal of Business, July, pp 28-98.

Fama, E.F. and M. Miller. (1972) The Theory of Finance. Hinsdale, IL: Dryden Press.

Fama, E.F., and M.C. Jensen. (1983) "Agency Problems and Residual Claims." The Journal of Law and Economics, Vol. 26, June, pp 327-349.

FASB (1976) Tentative Conclusions on Objectives of Financial Statements of Business Enterprises. Stamford, Conn.: FASB, December 2nd.

Feltham, G.A. (1968) "The Value of Information." The Accounting Review, October, pp 684-696.

Feltham, G.A. (1972) Information Evaluation: Studies in Accounting Research #5. Sarasota, Florida: American Accounting Association.

Feltham, G.A. (1982) "Financial Accouting Research: Contributions of Information Economics and Agency Theory." In Modern Accounting Research: Survey and Guide, edited by R. Mattessich.

Feltham, G.A., and J.S. Demski. (1970) "The Use of Models in Information Evaluation." Accounting Review, October, pp 623-640.

Feltham, G.A., and J.S. Hughes. (1982) Communication of Private Information in Capital Markets: Contingent Contracts and Verified Public Reports. Working Paper, University of British Columbia.

Ferris, K.R. (1975) "Profit Forecast Disclosure: The Effects on Managerial Behavior." Accounting and Business Research, Spring, pp 133-139.

Firer, C., and G. Meth (1986) " Information Disclosure in Annual Reports in South Africa.", Omega International Journal of Management Science, Vol. 14, No 5, pp 373-382.

Firth, M. (1976) "The Impact of Earnings Announcements on the Share Price Behavior of Similar Type Firms." The Economic Journal, June, pp 296-306.

Firth, M. (1978) "A Study of the Consensus of the Perceived Importance of Disclosure of Individual Items in Corporate Annual Reports." Journal of Accounting Education and Research, Vol. 13, No 1, pp 57-70.

Firth, M. (1979) "The Impact of Size, Stock Market Listing, and Auditors on Voluntary Disclosure in Corporate Annual Reports." Accounting and Business Research, Autumn, pp 273-280.

Firth, M. (1979) "The Disclosure of Information by Companies." Omega International Journal of Management Science, Vol. 7, No 2, pp 129-135.

Firth, M. (1980) "Raising Finance and Firm's Corporate Reporting Policies." Abacus, Vol. 16, No 2, pp 100-115.

Firth, M. (1984) "The Extent of Voluntary Disclosure in Corporate Annual Reports and its Association with Security Risk Measures." Applied Econometrics, Vol. 16, No 2, pp 269-277.

Flint, D. (1982) A True and Fair View. London: Gee and Co.

Foster, G. (1973) "Stock Market Reaction to Estimates of Earnings Per Share by Company Officials." Journal of Accounting Research, Spring, pp 25-37.

Foster, G. (1975) "Accounting Earnings and Stock Prices of Insurance Companies." The Accounting Review, October, pp 686-689.

Foster, G. (1977) "Quarterly Accounting Data: Time-Series Properties and Predictive-Ability Results." The Accounting Review, January, pp 1-21.

Foster, G. (1986) Financial Statement Analysis. 2nd ed. Englewood Cliffs, New Jersy: Prentice-Hall.

Foster, T. and D. Vickrey (1978) "The Information Content of Stock Dividend Announcements." The Accounting Review, April, pp 360-70.

Fraser, I.A. and C.W. Nobes. (1985) "The Assumed Users in Three Accounting Theories." Accounting and Business Research, Spring, pp 144-147.

Freze and R.K. Mautz. (1972) "Financial Reporting- By Whom." Harvard Business Review, March-April, p2.

Friend, I., and Herman. (1964) "The SEC Through A Glass Darkly." Journal of Business, Vol. 37, No 18, pp 382-390.

Garsombke, H. P. (1979) "The Relationship Between Corporate Disclosure And Firm Risk." Journal of Business Finance & Accounting 6, 1, pp 53-70.

Gjesdal, F. (1981) "Accounting for Stewardship." Journal of Accounting Research, Spring, Vol. 19, No 1, pp 208-231.

Gjesdal, F. (1982) "Information and Incentives: The Agency Information Problem." Review of Economic Studies, Vol. XLIX, pp 373-390.

Gonedes, N.J. (1973) "Properties of Accounting Numbers: Models and Tests." Journal of Accounting Research, Autumn, pp 212-237.

Gonedes, N.J. (1974) "Capital Market Equilibrium and Annual Accounting Numbers: Empirical Evidence." Journal of Accounting Research, Spring, pp 26-62.

Gonedes, N.J. (1975) "Information-Production and Capital Market Equilibrium." The Journal of Finance, June, Vol. 30, No 3, pp 814-864.

Gonedes, N.J., (1976) "The Capital Market, The Market for Information, and External Accounting." Journal of Finance, May, pp 611-630.

Gonedes, N.J. (1978) "Corporate Signaling, External Accounting, and Capital Market Equilibrium: Evidence on Dividends, Income, and Extraordinary Items." Journal of Accounting Research, Spring, pp 26-79.

Gonedes, N.J. (1980) "Public Disclosure Rules, Private Information Production Decisions and Capital Equilibrium." Journal of Accounting Research, pp 441-476.

Gonedes, N.J. and N. Dopuch. (1974) "Capital market equilibrium, Information Production, and Selecting Accounting Techniques: Theoretical Framework and Review of Empirical Work." Journal of Accounting Research. Supplement, Studies on Financial Accounting Objectives, pp 48-129.

Gonedes, N.J., N. Dopuch, and S.H. Penman. (1976) "Disclosure Rules, Information-Production, and Capital Market Equilibrium: The Case of Forecast Disclosure Rules." Journal of Accounting Research, Spring, pp 89-137.

Gray, S.J. (1978) "Segment Reporting and the EEC Multinationals." Journal of Accounting Research, Autumn, pp 242-253.

Gray, S.J. (1984) Information Disclosure and the Multinational Corporation. London: Wiley.

Gray, S.J. and C.B. Roberts. (1986) Voluntary Information Disclosure and the British Multinationals: Corporate Perceptions of Cost and Benefits. Paper Presented to the DHS/ICAEW Accounting Research Symposium, London Business School, London, 25-26 September.

Green, D. and J. Segall. (1966) "The Predictive Power of First-Quarter Earnings Reports: A Replication." Journal of Accounting Research. Supplement, Empirical Research in Accounting: Selected Studies, pp 21-36.

Green, D. and J. Segall. (1967) "The Predictive Power of First-Quarter Earnings Reports." The Journal of Business, January, pp 44-55.

Green, J.R. (1982) "Statistical Decision Theory Requiring Incentives for Information Transfer." In The Economics of Information and Uncertainty, edited by J.J. McCall. University of Chigago Press, pp 77-96.

Green, J.R. and N.L. Stokey. (1981) The Value of Information in the Delegation Problem. Working Paper, Harvard University.

Griffen, P.A. (1976) "The Association Between Relative Risk and Risk Estimates Derived from Quarterly Earnings and Dividends." The Accountancy Review, July, pp 499-515.

Griffin, P. (1987) Usefulness to Investors and Creditors of Information Provided in Financial Reporting. Reserch Report, Stamford, Connectict: FASB.

Griffin, P.A. and R.P. Castanias. (1987) FASB Research Report, Accounting for the Translation of Foreign Currencies: The Effects of Statement 52 on Equity Analysts. Stamford, Conn.: FASB.

Grossman, S.J. (1976) "On the Efficiency of Competitive Stock Markets Where Traders Have Diverse Information."Journal of Finance, May, pp 573-585.

Grossman, S.J. (1977) "The Existence of Future Market, Noisy Rational Expectations and Information Externalities." Review of Economic Studies, October, pp 431-450.

Grossman, S.J. (1981) "The Information Role of Warranties and Private Disclosure About Product Quality." The Journal of Law and Economics, December, Vol. XXIV, pp 461-483.

Hagerman, R.L. (1973) "The Efficiency of the Market for Bank Stocks: An Empirical Test." Journal of Money, Credit and Banking, August, pp 846-855.

Hagerman, R.L. and M.E. Zmijewski. (1979) "Some Economic Determinants of Accounting Policy Choice." Journal of Accounting and Economics, Vol. 1, pp 141-161.

Hakanson, N.H., J.G. Kunkel, and J.A. Ohlson. (1982) "Sufficient and Necessary Conditions for Information to Have Social Value in Pure Exchange." Journal of Finance, December.

Hakansson, N.H. (1977) "Interim Disclosure and Public Forecasts: An Economic Analysis and a Framework for Choice." The Accounting Review, April, Vol. LII, No 2, pp 396-416.

Hakansson, N.H. (1977a) "The Superfund: Efficient Paths Toward Efficient Capital Markets in Large and Small Countries." In Financial Decision Making Under Uncertainty, edited by H. Levy and M. Sarnat, New York: Academic Press, pp 165-201.

Hall, G. and P. Hutchinson (1988) "Changes in the Financial Characteristics of Newly Quoted Firms, 1970-73 and 1980-83." Management Research News, Vol.11, No. 4/5, pp 6-10.

Hamada, R.S. (1972) "The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks." Journal of Finance, May, pp 435-452.

Hawawini, G. (1984) European Equity Markets: Price Behavior and Efficiency. Monograph Series in Finance and Economics. Salomon Brothers Center for the Study of Financial Institutions, New York University.

Hawkins, D.F. (1963) "The Dvelopment of Modern Financial Reporting Practices Among American Manufacturing Corporations." 37 Business History Review, pp 135, 150-151.

Healy, P.M. (1985) "The Effect of Bonus Schemes on Accounting Decisions." Journal of Accounting and Economics, April, pp 85-107.

Hebden, J. (1981) Statistics for Economists. London: Philip Allen.

Hellwing, M.F. (1980) "On the Aggregation of Information in Capital Markets." Journal of Economic Theory, June, pp 477-498.

Hickey, A. (1986) An Introduction to Statistical Techniques for Social Research. New York: Random House.

Hilton, R.W. (1979) "The Determinents of Cost Information Value: An Illustrative Analysis." Journal of Accounting Research, Autumn, pp 411-435.

Hilton, R.W. (1981) "The Determinents of Information Value: Synthesizing Some General Results."Management Science, January, pp 57-64.

Hilton, R.W. and R.J. Swieringa. (1981) "Perception of Initial Uncertainty as a Determinent of Information Value." Journal of Accounting Research, Spring, pp 109-119.

Hirshleifer, J. (1971) "The Private and Social Value of Information and the Reward to Inventive Activity." American Economic Review, September, pp 561-574.

Hirshleifer, J. (1975) "Speculation and Equilibrium: Information, Risk, and Markets." Quarterly Journal of Economics, November, pp. 519-542.

HMSO. Financial Statistics.

Hoare Govett. (1988) The Unlisted Securities Market: A Survey. London: Hoare Govett.

Hoare Govett. (1989) The Unlisted Securities Market: A Survey. London: Hoare Govett.

Holthausen, R.W. (1981) "Evidence on the Effect of Bond Covenants and Management Compensation Contracts on the Choice of Accounting Techniques." Journal of Accounting and Economics, March, pp 73-109.

Holthausen, R.W. and R. Verrecchia. (1981) The Change in Price Resulting from a Sequence of Information Releases. Working Paper, University of Chiqago.

Horngren, C.T. (1957) "Disclosure." The Accounting Review, October, pp 598-604.

ICAS. (1988) Making Corporate Reports Valuable. London: Kogan Page.

Ijiri, Y., R. Jaedicke and K. Knight. (1966) "The Effects of Accounting Alternatives on Management Decisions." In Jaedicke, R., Y. Ijiri and O. Nielsen (eds), Research in Accounting Measurement, pp 186-199. Evanston, Ill.: American Accounting Association.

Irish, R.A. (1947) "The Evolution of Corporate Accounting." The Australian Accountant 17, November, pp 480-501. Reprinted in: M. Chartfield (ed.), Contemporary Studies in the Evolution of Accounting Thought. Belmont, California: Dickenson Publications.

Jaffa, J. and L. Merville. (1974) "The Value of Risk-Reducing Information." Journal of Financial and Quantitative Analysis, November, pp 697-707.

Jarrel, (1981) "The Economic Effects of Federal Regulation of the Market for New Securities Issues." Journal of Law and Economics, pp 613-669.

Jensen, M.C. (1978) "Some Anomalous Evidence Regarding Market Efficiency." Journal of Financial Economics, June/September, pp 95-101.

Jensen, M.C. and W.H. Meckling. (1976) "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." Journal of Financial Economics, pp 305-360.

Jensen, M.C. and W.H. Meckling. (1979) "Rights and Production Functions: An Application to Labor-Managed Firms and Codetermination." Journal of Business, Vol. 52, No 4, pp 469-506.

Jeuda, B. (1980) "Deserving a Better Fate- "The Corporate Report."" Accountancy, February, pp 76-78.

Kalyman, B.Y. (1971) "Estimation Risk in the Portfolio Selection Model." Journal of Financial and Quatitative Analysis, January, pp 559-582.

Kanodia, C. (1980) "Effects of Shareholder Information on Corporate Dicisions and Capital Market Equilibrium." Econometrica, May, pp 923-953.

Kaplan, R.S. (1975) "The Significance and Investigation of Cost Variables: Survey and Extensions." Journal of Accounting Research, Autumn, pp 311-337.

Kaplan, R.S. and G. Urwitz. (1979) "Statistical Methods of Bond Ratings: A Methodological Inquiry." The Journal of Business, April, pp 231-261.

Kaplan, R.S. and R. Roll. (1972) "Investor Evaluation of Accounting Information: Some Empirical Evidence." Journal of Business, April, pp 225-257.

Kelly-Newton, L. (1980) Accounting Policy Formulation: The Role of Corporate Management. Reading, Mass.: Addison-Wesley.

Kerlinger, F.N. (1973) Foundation of Behavioral Research. New York: Holt, Rinehart and Winston.

Kiger, J.E. (1972) "An Empirical Investigation of NYSE Volume and Price Reactions to the Announcement of Quarterly Earnings." Journal of Accounting Research, Spring, pp 113-128.

Kleinbaum, D.G., L.L. Kupper, and K.E. Muller. (1988) Applied Regression Analysis and Other Multivariable Methods. Boston, MASS: PWS-Kent.

Kneer, D., P. Reckers, W. Reed and M. Jennings. (1985) "Just How Much Should a Financial Statement Really Disclose." Business Horizons, November-December, pp 65-72.

Kolko, G. (1965) Railroads and Regulation. Princeton, N.J.: Princeton University Press.

Koutsoyiannis, A. (1987) Theory of Econometrics. 2nd Ed. London: MacMillan.

Kripke, H. (1979) The SEC and Corporate Disclosure: Regulation in Search of a Purpose. New York, N.Y.: Harcourt Brace Jovanovich.

Kunkel, J.G. (1982) "Sufficient Conditions for Public Information to Have Social Value in a Production and Exchange Economy." Journal of Finance, September, pp 1005-1073.

Laffont, J.J. and E. Maskin. (1981) The Theory of Incentives: An Overview. Economic Theory Discussion Paper, University of Cambridge.

Lambert, R.A. (1981) Managerial Incentives in Multiperiod Agency Relationships. Unpublished Dissertation, Stanford University.

Latane, H.A. and C.P. Jones. (1977) "Standardized Unexpected Earnings-- A Progress Report." Journal of Finance, December, pp 1457-1466.

Laub, P.M. (1976) "On the Information Content of Dividends." Journal of Business, January, pp 73-80.

Leftwich, R. (1980) "Market Failure Fallacies and Accounting Information." Journal of Accounting and economics, 2, pp 193-211.

Leftwich, R. (1981) "Evidence on the Impact of Mandatory Changes in Accounting Principles on Corporate Loan Agreements." Journal of Accounting and Economics, March, pp 3-36.

Leftwich, R. (1983) "Accounting Information in Private Markets: Evidence form Private Lending Agreements." The Accounting Review, January, pp 23-42.

Leftwich, R., R. Watts and J. Zimmerman. (1981) "Voluntary Corporate Disclosure: The Case of Interim Reporting." Jouranl of Accounting Research, 19, Spplement, pp 50-77.

Leland, H.E. and H. Pyle (1977) "Information Asymmetries, Financial Structure, and Financial Intermidiation." The Journal of Finance, Vol. XXXII, No 2, pp 371-378.

Leslie, L. (1979) The Extent and Causes of Voluntary Disclosure of Financial Information in Three European Capital Markets: An Exploratory Study. Unpublished Ph.D. Dissertation. Harvard University.

Lev, B. (1974) Financial Statements Analysis: A New Approach. Englewood Cliffs, N.J.: Printice-Hall.
Lev, B. (1988) "Toward a Theory of Equitable and Efficient Accounting Policy." The Accounting Review, January, pp 1-22.

Lev, B. and J.A. Ohlson. (1982) "Market-Based Empirical Research in Accounting: A Review, Interpretation, and Extension." Journal of Accounting Research, Vol. 20, Supplement, pp 249-322.

Lilien, S. and V. Pastena. (1982) "Determinants of Intre-method Choice in the Oil and Gas Industry." Journal of Accounting and Economics, December, pp 145-170.

Lintner, J. (1965) "Security Prices and Maximal Gains from Diversification." Journal of Finance, December, pp 587-615.

Lipe, R. (1986) "The Information Contained in the Components of Earnings." Journal of Accounting Research, Vol. 24, Supplement, pp 37-64.

London Stock Exchange. (1980) The USM General Undertaking. London: London Stock Exchange.

Markovitz, H.M. (1959) Portfolio Selection: Efficient Divesification of Investments. New York: Wiley.

Marris, R. (1964) The Economic Theory of 'Managerial' Capitalism. New York: Free Press and Macmillan.

Marschak, J. (1955) "Elements for a Theory of Teams." Management Science, January, pp 127-137.

Marschak, J. (1959) "Remarks on the Economics of Information." Contributions to Scientific Research in Management Science, Los Angeles: University of California Press, pp 79-98.

Marschak, J. (1963) " The Payoff-Relevant Description of States and Acts." Econometrica, October, pp 719-725.

Marschak, J. (1971) "Economics of Information Systems." Journal of the American Statistical Association, March, pp 192-219.

Marschak, J. and K. Miyasawa. (1968) "Economic Comparability of Information Systems." International Economic Review, June, pp 137-174.

Marschak, J. and R. Radner.(1972) Economic Theory of Teams. Yale University Press.

Marshall, J.M. (1974) "Private Incentives and Public Information." The American Economic Review, June, pp 373-390.

Marshall, R. (1972) "Determining an Optimal Accounting System for an Unified User." Journal of Accounting Research, Autumn, pp 286-307.

May, R. (1971) "The Influence of Quarterly Earnings Announcements on Investor Decisions as Reflected In Common Stock Price Changes." Journal of Accounting Research Supplement to vol. 9. Empirical Research in Accounting, pp 119-163.

May, R.G. and G. Sunden. (1976) "Research for Accounting Policy: An Overview." Accounting Review, October, pp 747-763.

Mayers, D. (1972) "Nonmarketable Assets and Capital Market Equilibrium Under Uncertainty." In Studies in the Theory of Capital Markets, edited by M.C. Jensen. New York: Prager, pp 223-248.

McCraw, T.K. (1975) "Regulation in America: A Review Article." Business History Review, Summer, pp 159-183.

McNally, G.M., L.H. Eng, and C.R. Hasseldine (1982) "Corporate Financial Reporting in New Zealand: An Analysis of User Preferences, Corporate Characteristics, and Disclosure Practices for Discretionary Information." Accounting and Business Research, Vol. 13, No 49, pp 11-20.

McNichols, M. and J.G. Manegold. (1982) Financial Disclosure and the Behavior of Security Prices: An Empirical Investigation." Working Paper, February. Los Angeles: University of California.

Merino, B.D. and M.D. Neimark. (1985) "Disclosure Regulation and Public Policy: A Sociohistorical Reappraisal." Journal of Accounting and Public Policy, Fall, pp 33-57.

Milgrom, P. and N. Stokey. (1982) "Information, Trade, and Common Knowledge." Journal of Economic Theory, February, pp 17-27.

Milgrom, P.R..(1981) "Good News and Bad News: Representation Theorems and Applications." The Bell Journal of Economics, Vol. 12, pp 380-391.

Mock, T.J. (1969) "Comparative Values of Information Structures." Journal of Accounting Research. Empirical Research in Accounting: Selected Studies, pp 124-159.

Morse, D. (1981) "Price and Trading Volume Reaction Surrouding Earnings Announcements: A Closer Examination." Journal of Accounting Research, Autumn, pp 374-383.

Morse, D. (1982) "Wall Street Journal Announcements and the Securities Markets." Financial Analysts Journal, March/April, pp 69-76.

Myerson, R.B. (1979) "Incentive Comparability and the Bargaining Problem." Econometrica, Vol. 47, January, pp 61-74.

Ng, D.S. (1975) "Information Accounting and Social Welfare Under Homogeneous Beliefs." Journal of Financial Economics, 2, pp 53-70.

Ng, D.S. (1977) "Pareto-Optimality of Authentic Information." The Journal of Finance, Vol. 32, No 5, pp 1717-1728.

Noll, R. (1971) Reforming Regulation. The Brookings Institutions. Washington D.C.

Novshek, W. and H. Sonnenscchein. (1982) "Fulfilled Expectations Cournot Duopoly With Information Acquisition and Rlease." Bell Journal of Economics, Spring, pp 214-218.

Ohlson, J.A. (1980) Efficiency and the Social Value of Public Information in Exchange Economies. Working Paper. Berkley: University of California.

Ohlson, J.A. (1980a) Asset-Price Behavior and Socially Useful (Useless) Information. Working Paper. Berkley: Univesity of California.

Ohlson, J.A. and A.G. Buckman. (1980) "Toward a Theory of Financial Accounting." Journal of Finance, May, pp 537-547.

Ohlson, J.A. and G. Buckman. (1981) "Toward a Theory of Financial Accounting: Welfare and Public Information." Journal of Accounting Research, Autumn, pp 399-433.

Ormrod, P. and R. Morris. (1988) "The Attitudes of Credit Analysts Toward Reduced Disclosures by Small Comapnies." Paper Presented at a Workshop at Strathclyde University, Glasgow.

Owings, G. (1980) An Inquiry Into Differential Disclosure Standards For Smaller and/or Closely Held Businesses. Unpublished Ph.D Dissertation. University of Missouri.

Paplepu, K. (1986) "Predicting Takeover Targets: A Methodological and Empirical Analysis." Journal of Accounting and Economics, Vol 8, pp 3-35.

Patell, J.M. (1976) "Corporate Forcasts of Earnings per Share and Stock Price Behavior: Empirical Tests." Journal of Accounting Research, Autumn, pp 246-276.

Patell, J.M. and M.A. Wolfson. (1979) "Anticipated Information Release Reflected in Call Option Prices." Journal of Accounting and Economics, August, pp 117-140.

Patell, J.M. and M.A. Wolfson. (1981) "The Ex Ante and Ex Post Price Effects of Quarterly Earnings Announcements Reflected in Option and Stock Prices." Journal of Accounting Research, Autumn, pp 434-458.

Peasnell, K. (1981) "Forecast Reporting." In T. A. Lee (ed), Developments in Financial Reporting. London: Philip Allan.

Peasnell, K. (1982) "The Fuction of a Corporate Framework for Corporate Financial Reporting Accounting and Business Research, Autumn, pp 243-256.

Peasnell, K. and C. Ward. (1985) British Financial Markets and Institutions. London: Printice-Hall

Peat Marwick McLintock. (1987) USM Quarterly. London: Peat Marwick McLintock.

Peat Marwick McLintock. (1989) USM Quarterly. London: Peat Marwick McLintock.

Peat Marwick Mitchell and Co. (1984) Entering the Unlisted Securities Market. London: Peat Marwick Mitchell and Co.

Peat Marwick Mitchell and Co. (1986) USM Quarterly. London: Peat Marwick Mitchell and Co.

Peltzman, S. (1976) "Toward a More General Theory of Regulation." Journal of Law and Economics, Vol. 19, August.

Penman, S.H. (1978) Voluntary Disclosure of Earnings Forecasts. Working Paper. Berkley: University of California.

Penman, S.H. (1980) "An Empirical Investigation of the Voluntary Disclosure of Corporate Earnings Forecasts." Journal of Accounting Research, Spring, pp 132-160.

Penman, S.H. (1980) "An Empirical Investigation of the Voluntary Disclosure of Corporate Earnings Forecasts." Journal of Accounting Research, Spring, Vol. 18, No 1, pp 132-160.

Perks, B. (1983) "The Implementations of SSAPs with Particular Reference to SSAP15." Journal of Association of University Teachers of Accounting.

Pettit, R.R. (1972) "Dividend Announcements, Security Performance, and Capital Market Efficiency." The Journal of Finance, December, pp 993-1007.

Pettit, R.R. (1976) "The Impact of Dividend and Earnings Announcements: A Reconciliation." The Journal of Business, January, pp 86-96.

Plott, C.R. and S. Sunder. (1982) "Efficiemcy of Experimental Security Markets with Insider Information: An Applicational-Expectations Models." Journal of Political Economy, August, pp 663-698.

Ponssard, J. (1976) "On the Concept of the Value of Information in Competitive Situations." Management Science, Mach, pp 739-747.

Popoff, B. and T.K. Cowan (1985) Analysis and Interpretation of Financial Statements. 2nd ed. Australia: Butterworths.

Posner, R.A. (1974) "Theories of Economic Regulation." Bell Journal of Economics and Management Science, Vol. 5, No 2, pp 335-358.

Puxty, A.G. (1985) Crisis Tendencies, The Accountancy Profession, and The state, Paper presented at the Deloitte, Haskins and Sells Research Workshop, University of Glasgow, November. Glasgow.

Radner, R. (1968) "Competitive Equilibrium Under Uncertainty." Econometrica, January, pp 31-58.

Radner, R. (1970)"Problems in the Theory of Markets Under uncertainty." American Economic Review, May, pp 454-460.

Radner, R. (1974) "Market Equilibrium and Uncertainty: Concepts and Problems." In Frontiers of Quantitative Economics, Vol. II, edited by M.D. Intriligator and D.A. Kendrick. New York: Noth-Holland, pp 43-90.

Radner, R. (1979) "Rational Expectations Equilibrium: Generic Existence and the Information Revealed by Prices." Econometrica, Vol. 47, No. 3, May, pp 655-678.

Radner, R. (1981) "Monitoring Cooperative Agreements in a Repeated Principal-Agent Relationship." Econometrica, September, pp 1127-1148.

Radner, R. (1982) "Equilibrium Under Uncertainty." In Handbook of Mathematical Economic, Vol. II, edited by K.J. Arrow and M.D. Intriligator. New York: North-Holland, pp 923-1006.

Raviv, A. (1985) "Management Compensation and the Managerial Labor Market: An Overview." Journal of Accounting and Economics, April, pp 239-245.

Rayburn, J. (1986) "The Association of Operating Cash Flow and Accruals with Security Returns." Journal of Accounting Research, Vol. 24, Supplement, pp 112-133.

Richardson, G.D. (1982) "Determinants of the Information Content of Annual Earnings Announcements and the Association Between Information Content and Insider Trading Activity." Research Proposal, Cited in Waymire, G. "Earnings Volatility and Disclosure," Journal of Accounting Research, Spring, 1985, pp 269-295.

Ricks, W.E. (1982) "The Market´s Response to the 1974 LIFO Adoptions." Journal of Accounting Research, Autumn, pp 367-387.

Riley, J.G. (1975) "Competitive Signalling." Journal of Economic Theory, 10, pp 174-186.

Riley, J.G. (1979) "Noncooperative Equilibrium and Maket Signalling." American Economic Review, May, pp 303-307.

Riley, J.G. (1979a) "Informational Equilibrium." Econometrica, March, pp 331-359.

Ronen, J. (1979) "The Dual Role of Accounting: A Financial Economic Perspective." In Hanbook of Financial Economics, edited by J.L. Bicksle. Amesterdam: North-Holland Publishing Co.

Ronen, J. (1981) "Discussion of the SEC´s Influence on Accounting Standards: The Power of the Veto." Journal of Accounting Research, Vol. 19, Supplement, pp 157-164.

Rosenberg, B. and V. Marathe. (1975) "The Prediction of Investment Risk: Systemitic and Residual risk." Proceedings: Seminar on the Analysis of Security Prices, November, pp 85-225.

Ross, H. (1965) Disclosure in Company Accounts. London: Institute of Economic Affairs.

Ross, S.A. (1973) "The Economic Theory of Agency: The Principal´s Problem." American Economic Association, May, pp 134-139.

Ross, S.A. (1977) "The Determination of Financial Structure: The Incentive Signalling Approach." The Bell Journal of Economics, Spring, pp 23-40.

Ross, S.A. (1978) "Some Notes on Financial Incentive-Signalling Models, Activity Choice and Risk Preferences." The Journal of Finance, June, Vol. 33, No. 3, pp 777-794.

Ross, S.A. (1979) "The Economics of Information and the Disclosure Regulation Debate." In Issues in Financial Regulation, New York: McGraw-Hill, pp 177-202.

Rubinstein, M. (1973) "A Mean-Variance Syntheseis of Corporate Financial Theory." Journal of Fianace, March, pp. 167-181.

Rubinstein, M. (1975) "Security Markets Efficiency in an Arrow-Debreu Economy." The American Economic Review, December, pp 812-824.

Salamon, G. and D. Dhaliwal (1980) "Company Size and Financial Disclosure Requirements with Evidence from the Segmental Reporting Issue." Journal of Business, Finance and Accounting, pp 555-568.

Sandford, C.T. (1978) The Economics of Public Finance. Oxford: Pergamon Press.

Schipper, K. (1981) "Discussion of Voluntary Corporate Disclosure: The Case of Interim Reporting." Journal of Accounting Research, 19, Supplement, pp 85-88.

SEC (1977) ASR No 225, Lease Accounting and Disclosure Rules. Chicago: Commerce Clearing House, Inc, August 31.

Seligman, M. (1983) "The Historical Need for a Mandatory Corporate Disclosure System." The Journal of Corporation Law, Fall, Vol. 9, No. 1, pp 1-61.

Sharpe, W.F. (1964) "Capital Asset Prices: The Theory of Market Equilibrium Under Condition of Risk." Journal of Finance, September, pp 425-442.

Sharpe, W. (1978) Investments. Englewood Cliffs, New Jersey: Prentice-Hall.

Shaw, G. and D. Wheeler (1985) Statistical Techniques. Chichester: John Wiley & Sons.

Shubik, M. (1981) "Game Theory Models and Methods in Political Economy." In Handbook of Mathematical Economics, Vol. I, (ed) K.J. Arrow and M.D. Intriligator, New York: North-Holland, pp 285-330.

Siegel, S. (1956) Nonparametric Statistics. New York: McGraw-Hill.

Siegal, S. and Castellan. (1988) NonParametric Statistics. New York: McGraw-Hill.

Simon, H.A. (1957) Administrative Behaviour. London: MacMillan.

Singhvi, S.S. and H.B. Desai. (1971) "An Empirical Analysis of the Quality of Corporate Financial Disclosure." The Accounting Review, January, pp 129-138.

Small GAAP Committee. (1976) Small GAAP Committee Report. New York: AICPA.

Smith, C. (1979) "Application of Option Pricing Analysis." In J. Bicksler (ed), Handbook of Financial Economics. Amsterdam: North-Holland.

Smith, C.W. and J.B. Warner. (1979) "On Financial Contracting: An Analysis of Bond Covenants." Journal of Financial Economics, June, pp 117-161.

Smith, E.D. (1976) "The Effect of the Separation of Ownership from Control on Accpunting Policy Decisions." The Accounting Review, October, pp 707-723.

Solomons, D. (1980) "Political Implications Of Accounting And Accounting Standard Setting." Arthur Young Lecture No. 3., University of Glasgow.

Solomons, D. (1986) Making Accounting Policy. New York: Oxford University Press.

Spence, A.M. (1974) Market Signaling: Informational Transfer in Hiring and Related Screening Processes. Cambridge, Mass.: Harvard Univesity Press.

Spence, A.M. (1976) "Information Aspects of Market Structure: An Introduction." Quarterly Journal of Economics, November, pp 591-597.

Spence, A.M. (1976a) "Competition in Salaries, Credentials, and Signaling Prerequisites for Jobs." Quarterly Journal of economics, February, pp 51-74.

Spence, M. (1973) "Job Market Signalling." Quarterly Journal of Economics, August, pp 355-374.

Spence, M. and R. Zeckhauser. (1971) "Insurance, Information, and Individual Action." The American Economic Review, May, pp 380-387.

Sterling, R. (1970) Theory of Measurement of Enterprise Income. Lawrence, KS: University Press of Kansas.

Stigler, G.J. (1964) "Public Regulation of the Securities Markets." 37, Journal of Business, p 117.

Stigler, G.J. (1971) "The Theory of Economic Regulation." Bell Journal of Economics and Management Science, Vol. 2, pp 3-21.

Sunder, S. (1973) "Relationships between Accounting Changes and Stock Prices: Problems of Measurement and Some Empirical Evidence." Journal of Accounting Research. Supplement, Empirical Research in Accounting: Selected Studies, pp 1-45.

Sunder, S. (1975) "Stock Price and Risk Related to Accounting Changes in Inventory Valuation." The Accounting Review, April, pp 305-315.

Taylor, P. and S. Truley. (1986) The Regulation of Accounting. London: Basil Blackwell.

The Accounting Standards Steering Committee (1975) The Corporate Report: A Discussion Paper. London: The Accounting Standards Steering Committee.

The Companies Act 1948.

The Companies Act 1985.

The London Stock Exchange. (1979) The Stock Exchange, Unlisted Securities Market. London: The Stock Exchange.

Thomas, A.L. (1974) The Allocation Problem: Part Two, Studies in Accounting Research No. 9. American Accounting Association.

Thomas, A. (1983) "The Contingency Theory of Corporate Reporting: Some Empirical Evidence Paper Presented At the EAA Annual Conference, University of Glasgow.

Tinker, A.M., B.D. Merino, and M.D. Neimark. (1985) Issues in Accountability XII. September. pp 25-42.

Tirole, J. (1982) "On the Possibility of Speculation Under Rational Expectations." Econometrica, Sptember, pp 1163-1181.

Touch, Ross and Co. (1985) The Unlisted Securities Market. London: Touch, Ross and Co.

Townsend, R.M. (1979) "Optimal Contracts and Competitive Markets with Costly State Verification." 21 Journal of Economic Theory, pp 265-293.

Trueman, B. (1986) "Why Do Managers Voluntarily Release Earnings Forecasts?." Journal of Accounting and Economics, 8, pp 53-71.

Ueker, W.C. (1978) "A Behavioral Study of Information System Choice." Journal of Accounting Research, Spring, pp 169-189.

Verrecchia, R.E. (1978) "On the Choice of Accounting Method for Partnerships." Journal of Accounting Research, Spring, pp 150-168.

Verrecchia, R.E. (1979) "On the Theory of Market Information Efficiency." Journal of Accounting and Economics, March, pp 77-90.

Verrecchia, R.E. (1980) "The Rapidity of Price Adjustments to Information." Journal of Accounting and Economics, March, pp 63-92.

Verrecchia, R.E. (1980a) "Consensus Beliefs, Information Acquisition, and Market Information Efficiency." American Economic Review, December, pp 874-884.

Verrecchia, R.E. (1981) "On the Relationship Between Volume Reaction and Consensus of Investors: Implications for Interpreting Tests of Information Content." Journal of Accounting Research, Spring, pp 271-183.

Verrecchia, R.E. (1982) "The Use of Mathematical Models in Financial Accounting." Journal of Accounting Research, Supplement.

Verrecchia, R.E. (1982a) "Information Acquisition in a Noisy Rational Expectations Economy." Econometrica, November, pp 1415-1430.

Verrecchia, R.E. (1983) "Discretionary Disclosure." Journal of Accounting and Economics, Vol. 5, pp 179-194.

Vigland, R.L. (1981) "The Market Reaction to Statement of Financial Accounting Standards No. 2." The Accounting Review, April, pp 309-325.

Von Neumann, J. and O. Morgenstern. (1944) Theory of Games and Economic Behavior. New Jercy: Princeton University Press.

Walker, M. (1987) The Relevance of Market Based Accounting Research for Financial Reporting Policy. Working Paper. London School of Economics. University of Reading.

Walker, M. (1988) "Information Economics and Agency Theory: Elements for a Theory of Corporate Reporting." In Making Coprorate Reports Valuable -The Literature Surveys. The Institute of Charted Accounting of Scotland

Watts, R.L. (1977) "Corporate Financial Statements: A Product of Market and Political Processes." Australian Journal of Management, April, pp 53-75.

Watts, R.L. and J.L. Zimmerman. (1978) "Towards a Positive Theory of the Determination of Accounting Standards." The Accounting Review, January, Vol. LIII, No. 1, pp 112-143.

Watts, R.L. and J.L. Zimmerman. (1979) "The Demand for and Supply of Accounting Theories: The Market for Excuses." The Accounting Review, April, Vol. LIV, No. 2, pp 273-305.

Watts, R.L. and J.L. Zimmerman. (1980) "On the Irrelevance of Replacement Cost Disclosures for Securities Prices." Journal of Accounting and Economics, pp 95-106.

Watts, R.L. and J.L. Zimmerman. (1981) The Markets for Independence and Independent Auditors. Working Paper No 490V, 80-10, June. Graduate School of Management, University of Rochester.

Watts, R.L. and J.L. Zimmerman. (1986) Positive Accounting Theory. Englewood Cliffs, N.J.: Prentice Hall.

Waymire, G. (1984) "Additional Evidence on the Information Content of Management Earnings Forecasts." Journal of Accounting Research, Autumn, pp 703-718.

Whittington, C. (1987) "Positive Accounting: A Review Article." Accounting and Business Research, Vol. 17., pp 327-336.

Williamson, O. (1964) The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm. Englewood Cliffs. N.J.: Prentice-Hall.

Williamson, O. (1975) Market and Hierachies: Antitrust Implications. New York: Free Press.

Williamson, O.E. (1967) The Economics of Discretionary Behaviour. London: Kershaw.

Wilson Committee. (1980) Wilson Committee to Review the Function of Financial Institutions. Cmnd 7937. London: HMSO.

Wilson, C. (1977) "A Model of Insurance Markets with Incomplete Information." Journal of Economic Theory, December, pp 167-207.

Wilson, C. (1980) "The Nature of Equilibrium in Markets with Adverse Selection." Bell Journal of Economics, Spring, pp 108-130.

Yamey, B.S. (1962) "Some Topics in the History of Financial Accounting in England 1500-1900." In Studies in Accounting Theory, edited by W.T. Baxter and S. Davidson. pp 14-43. London: Sweet and Maxwell ltd.

Zeff, S.A. (1978) "The Rise of Economic Consequenses." Journal of Accountancy, December, pp 56-63.

Zeff, S.A. (1983) "Some Junctures in the Evolution of the Process of Establishing Accounting Principles: 1917-1972." Paper Presented at AAA Annual Meeting, August 83. New Orleans.

Zimmerman, J. (1980) "Positive Research in Accounting." Perspectives on Research: 1980 Beyer Consortium, pp 107-128. University of Wisconsin-Madison.

Zimmerman, J. (1982) "Research On Positive Theories of Financial Accounting." Working Paper, The University of Rochester, November.

Zmijewski, M. and L. Hagerman. (1981) "An Income Strategy Approach to the Positive Theory of Accounting Standard Setting/Choice." Journal of Accounting and Economics, 3, pp 129-149.